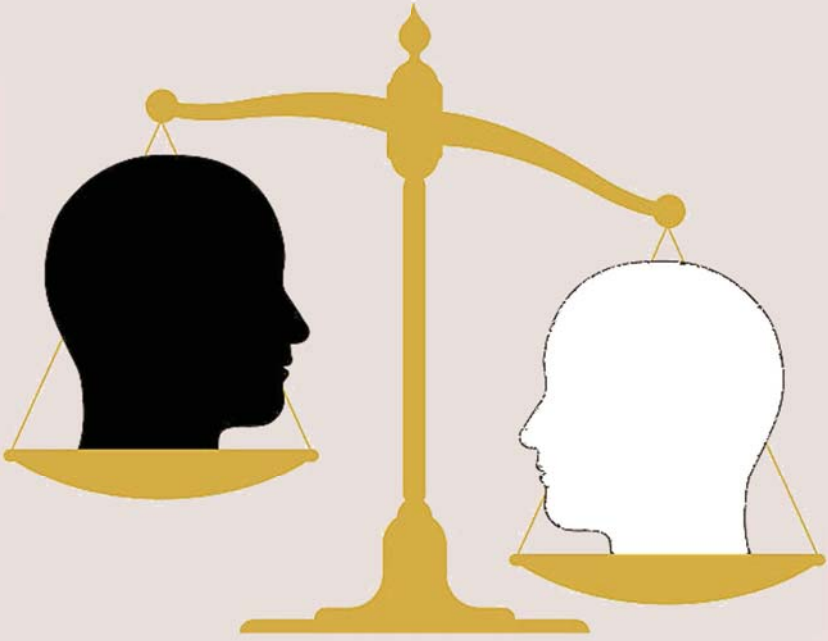
Legal Argumentation



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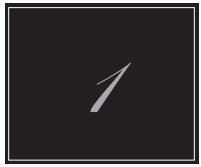
CONTENTS



SPECIAL FEATURES OF ARGUMENTATION IN A LEGAL SYSTEM

The first thing a person is struck by when beginning to study legal argumentation and comparing it to ordinary (nonlegal) argumentation is the apparently quite impressive differences between the two. The law has special terms that are used, procedural rules about how one should collect evidence, what kinds of arguments constitute evidence, and how one should argue in a structured legal framework like a trial. Not only are these rules themselves codified as laws, in the form of procedural rules, but also laws are generally codified as statutes. Evaluating legal arguments seems to be quite different from evaluating everyday arguments, where anyone can

have an opinion on whether an argument should be considered and how it should be judged. There is a mass of material that one has to understand before one can appreciate what legal arguments are all about, and how they are to be evaluated by legal standards. For these reasons, it may even seem that legal arguments can only be evaluated by the trained professionals in the legal system. It seems like someone who is not a legal professional is simply not in a position to evaluate, criticize, or question legal arguments.[1]

On the other hand, the laws affect us all, as citizens. We are supposed to know what the laws are, and if we don't we can be penalized, sometimes very heavily. Ignorance of the law, it is commonly said, is no excuse. Also, when we watch a trial, or participate in one by being on a jury, we can follow the arguments put forward by both sides. The arguments the attorneys use are similar to ones we know and use every day, even though they may be somewhat modified to suit legal purposes and methods. We understand exactly what the attorney is doing when he puts forward an argument (at least most of the time), and we can make up our own minds whether we are persuaded by that argument or not. If we see legal arguments that are persuasive in widely publicized trials as being illogical, such a perception can shake public faith in the legal system, and that lack of faith could be a serious problem. Many legal arguments are in fact designed to persuade a jury of individuals who have no special training in law and are supposed to "deliberate" on a case using "common sense." The jurors are the "finders of fact," meaning they are supposed to judge the evidence presented in court, and fit these presumed facts to the law. As Theodore Plucknett has shown, the jury originated historically as a group that was supposed to represent the community by expressing the suspicions or the opinion of the countryside (1956, 127). Thus the jury was supposed to be familiar with the facts of case even before it went to trial. But then gradually the function of the jury evolved so that the jury became the judge of facts that parties attempt to prove before them (133). According to this newer model, the jury had to use skills of judgment and good reasoning to evaluate the arguments put before them by both sides in a court. Thus there are many reasons why it is important for legal argumentation to be based on underlying logical reasoning of a kind that can be understood, discussed, questioned, and evaluated by observers other than legal professionals.

This apparent contradiction is affected by questions about whether there is

1. Fried (1981–82, 38) has argued that the law is an autonomous subject that cannot be reduced to economics or moral philosophy, and that judges and lawyers are experts in this subject. I am denying none of these claims. The claim made here is that legal reasoning has an underlying logical structure that shares many features and forms of inference with everyday conversational argumentation.

some structure of logic underlying legal argumentation and evidence, and what form this structure has. I will attempt to answer these questions in this book by proposing and arguing for a new theory. It will be shown that although law is based on commonly used and familiar forms of argument, it uses these arguments for a special purpose within a unique evidential framework.[2] The new theory is based on the premise that to evaluate argumentation in a given case two levels are important. First, you have to look at the form of the argument. Second, you have to look at how the argument was used for some purpose in a communicative context. It will be shown later in the book how differing types of dialogue, contexts, and purposes explain why different fields have different theories of what is relevant evidence. A legal system needs to be seen as a special kind of institutional framework that uses argumentation both to guide a society's conduct and to provide a way of resolving disputes fairly. This introductory chapter will outline the special features of a legal system, and especially the Anglo-American legal system, that makes the job of evaluating legal arguments distinctively different from the familiar activity of criticizing and judging ordinary arguments in everyday conversational exchanges outside the legal context. The purpose of presenting this outline is to give the reader who has not studied law a preparation for the main tasks of this book—the identification, analysis, and evaluation of the most common and important kinds of arguments used in legal discourse.

1. LEGAL RULES AND PARTICULAR CASES

Perhaps the most pervasive and distinctive feature of modern legal argumentation is its dependence on an abundance of laws in the form of rules that apply to a person's conduct. These rules are set in place as laws by constitutional framers and ratifiers, by legislatures, and by the courts themselves. The rules tend to be of a somewhat abstract and general nature, as they apply to kinds of actions in kinds of circumstances, and they are arguably subject to exceptions, or even to modification of the rule, in special situations. And even with quite a specific rule, it can be debated whether or how it applies to a particular situation. So, even though such rules are stated and printed for all to see, in statutes and codes, there is room for interpreting a rule, one way or another, in relation

2. My argument in this book is that legal argumentation has a distinct framework as a goal-directed dialectical process, which supports Fried's view (1981–82) that the law is an autonomous subject with special procedures and methods that are vital to grasping how arguments are used in it.

to the specifics of a real case that falls under it, or appears to fall under it. Much legal reasoning, then, is of a kind that fits legal rules to particular cases.

Legal reasoning typically takes the form of an inference in which the major premise states a generalization (rule) and the minor premise is a specific statement that fits the circumstances (facts) of the particular case into the scope of the general premise. An example is cited by John Wigmore:

MAJOR PREMISE: If one party has contracted to carry out an act for another party, but has then failed to do it, she is liable to the other party for breach of contract.
MINOR PREMISE: The defendant contracted to carry out a certain act for the plaintiff, but then failed to do it.
CONCLUSION: The defendant is liable to the plaintiff for breach of contract. (1935, 6)

The major premise is a generalization, or general rule, that can be described as a rule of law. The truth or rationale of this premise is justified by the accepted meaning that the term 'contract' has in law. The minor premise is a factual assertion that makes a claim about the particulars of a given case. Its justification is empirical in nature. To determine whether this proposition is true or false in the given case, one has to look at the facts in the case, as they are known, or can be established.

Of course, in legal cases, an argument generally has two sides. The other side, arriving at an opposite conclusion, may use the very same kind of rule-based reasoning. An example is cited by Charles Howard and Robert Summers in the following inference:

MAJOR PREMISE: An offer and an acceptance are required to form a contract.
MINOR PREMISE: The defendant's statement to the plaintiff did not constitute an acceptance.
CONCLUSION: No contract was formed. (1965, 93)

This example, very much like the first one, illustrates the importance of definitions and the classification of things under verbal categories in legal reasoning. The major premise is held to be true by virtue of what a legal contract is, as defined by law. The minor premise is held to be true by virtue of how the plaintiff's action can be verbally classified in the case at issue. Was it reasonable to classify it as an "acceptance" or not? The above inference takes a negative

form because the minor premise states that the act should not be classified under the heading of acceptance.

When you put the two inferences together, as might occur in an actual case at issue, you see that the first inference gives a reason for accepting its conclusion, as applied to a particular case. But then the second inference has a conclusion that is opposed to that of the first. If it is true that no contract was formed, then it is false that the defendant is liable to the plaintiff for breach of contract. What can be seen here is a typical kind of legal case in which an argument is put forward by one side, and then a second argument is put forth by the other side that, if correct, would defeat the first argument. If the major premises of both inferences are rules generally accepted in the legal system, the question of which conclusion is justified depends on the evidence concerning the facts—that is, on what supposedly happened in the case. In a case where the major premise is not being contended, the argumentation may center on the minor premise. The kind of reasoning used for this purpose is called "fact-finding." The reasoning is directed to finding the facts of the case. Once these facts are determined, the application of the major premise then leads to a conclusion, and thus the argument reaches a legal judgment.

The fact-finding function of a jury in a trial represents one important kind of legal reasoning. But as will be shown below, it is not the only kind of legal argumentation. Disputes can occur on how to interpret the major premise, and on whether other rules or definitions may be applicable to a case. In so-called penumbra cases the rule expressed in the major premise may be abstract and general. Just to apply pre-existing rules mechanically would be a formalistic or so-called naïve positivistic approach. The problem is to determine how the rule should be specifically interpreted in relation to the given case, or other cases of the same or similar kind that may occur in the future. In some cases, sometimes called "hard cases," the court may even argue for changing the rule. According to H. L. A. Hart, "the intelligent decision of penumbral questions is one made not mechanically but in light of aims, purposes and policies" (1957–58, 614). Hart describes "formalism" or "literalism" as the simplistic theory that legal reasoning is a mechanical deductive inference from premises laid down as rules stated in written statutes (608). The kinds of inferences cited above do not seem to fit this formalistic model, at least in many instances. The conclusion is not conclusively proved, beyond all doubt. Instead, it is given a certain weight of presumption determined by the rules, the presumed facts of the case, and how well the rules fit the facts.

But even simpler cases of fact-finding argumentation illustrate some key elements present in legal argumentation. There is a conflict of opinions, meaning that the opinion on the one side is the opposite or negation of the opinion on

the other side. Each side has arguments to support its opinion. And each argument takes the form of an inference made up of some premises and a conclusion supposedly proved or supported by those premises. Some premises concern laws in the form of general rules. Other premises concern what are alleged to be facts of the given case. The inference to the conclusion is based on a meshing of the facts and the rules. Each case is different from every other particular case, even though two cases can be quite similar, so legal argumentation of this fact-finding type involves a special case-based kind of reasoning. The examples also show how the facts of a case can be contentious. A legal argument typically has some weight in a case—that is, drawing the inference to a particular conclusion can seem reasonable, given what is known about the case. But then when new evidence is introduced, in the form of an argument that brings out a new aspect of the case, the argument that formerly seemed reasonable may now be refuted. This property of susceptibility to refutation, called defeasibility (Prakken 1997), is an extremely important characteristic of the typical kind of legal argumentation used to apply rules to facts in a case at issue. It means that a legal argument can be good, or can carry weight to give evidential support to a claim, even though the argument is not conclusive, and may later be defeated.

2. INTERPRETATION OF STATUTES AND DOCUMENTS

Much legal argumentation is concerned with the interpretation of statutes and with determination of what the law is. The focus of this kind of legal reasoning is not on the facts of a particular case but on determination of what the law is, or should rightly be taken to be. In this kind of legal reasoning, dealing with questions of how to interpret a text of discourse, and dealing with ambiguous, abstract, or unclear language, are important argumentation skills. Hart cites the following example.

A legal rule forbids the taking of vehicles into a park. This rule clearly excludes cars, but does it apply to bicycles, roller skates, airplanes, or toy cars? In any rules of this sort there is a core of settled meaning that applies clearly to standard cases, but there is also a "penumbra of debatable cases" that are "variants on the familiar" (Hart 1957–58, 607). In such cases, legal disputation can arise on how rules and words in rules should be interpreted, both generally and with respect to how they apply to cases. It is often an important function of legal argumentation to address a written statute or ruling, and to interpret the meaning of the ruling supposedly expressed. In these cases, there are all the problems of dealing with the meaning of a written text. The wording may be taken different ways. It may apply to some new situation that was not encoun-

tered in the past, when the statute was drawn up. The wording of a ruling in a written document in one place may even seem to contradict the apparent or plausible meaning of the wording in another part of the document.

Interpretation is so important to legal argumentation that there are many schools of thought, both in continental and Anglo-American law. In the continental legal tradition, four techniques or "canons" of interpretation are recognized (Feteris 1999, 7–8). An interpretation based on the meaning of a term in ordinary or technical language is called a grammatical or semantic interpretation. An interpretation based on the history of a legal term or rule is called a historical interpretation. One based on the position of a term or rule in a legal system containing other legal norms and principles is called a systematic interpretation. An interpretation referring to the intent of a legislator is called teleological.

According to Frank Easterbrook, there are three main schools of thought on what criteria should be used in interpreting the U.S. Constitution (1988, 59). The *originalists* take history and intent as the important factors. The *structuralists* advocate the criterion of seeing how the structure of the document applies to the problem at hand. The *nonoriginalists* look to the values that are implicit in the document. As times and circumstances change, it can be difficult to judge how an old piece of legislation might apply to a new development. Richard Posner cites the example of state statutes that rule that jurors should be selected from those eligible to vote. At the time these statutes were passed, women were not eligible to vote. But now that women are voters, should the statute be interpreted as ruling that jurors should be selected from all voters, including women? The problem is that we have to make presumptions about what we think the legislators were mainly concerned with when they made the ruling (1987, 195). One presumption we could invoke is the following.

Presumably, the legislators were mainly concerned with tying juror eligibility to voter eligibility, and were not mainly concerned with the sex of voters. Using this presumption, we can conclude by plausible argumentation that the ruling should apply to all voters, including women. At any rate, this example indicates the problem of legal reasoning that is commonly encountered when trying to draw conclusions on the basis of interpretation of a written document in which a legislative ruling has been laid down. These kinds of problems are not about the facts of a case but about what the law is, or should rightly be taken to be. They are typically meta-level problems of interpretation of some text of discourse. So it might seem that they do not involve argumentation at all but only interpretation. But there are various identifiable kinds of arguments that are used.

Robert Summers has distinguished twenty-two distinct types of argumenta-

tion that are used to resolve conflicts of statutory interpretation that arise in the U.S. Supreme Court, and presumably, other courts as well. The first ten of these types of arguments are probably the most important from our viewpoint (1991, 412–19).

1. The argument from a standard ordinary meaning of the words at issue. According to Summers, such evidence may come from dictionaries, literary reference works, or judicial pronouncements of various kinds.
2. The argument from a standard technical meaning of the words at issue. Such a technical meaning could be a standard, accepted legal meaning, or it could be the meaning a term has in some branch of knowledge or technology.
3. The argument from the meaning indicated by contextual-harmonization. Factors included are how the words at issue fit in with the rest of a paragraph, or with the wording in the rest of the statute.
4. The argument from precedent. For example, a prior legal decision may have already given a particular interpretation of the words at issue.
5. The argument from statutory analogy. For example, it may be argued that a word should be interpreted in a particular way because that would treat similar cases similarly.
6. The argument from coherence with general legal concepts. For example, the term 'contract' may appear in the statute.
7. The argument from congruence with public policy. An authoritative public policy may be relevant to how a word or phrase should be interpreted.
8. The argument from general legal principles that are relevant. For example, the principle that no person should profit from his own wrong may be relevant.
9. The argument from a historically evolved meaning that statutory words have come to have within the system.
10. The argument from the ultimate purpose of the statute. Summers cites the following example: Suppose a person rides a shod horse on the sidewalks in a park. Imagine a statute that explicitly states (a) the ultimate purpose of this statute is to promote quiet and safety in the park, and (b) no vehicle may be taken into the park. A court, in such a case, might justify classifying a horse as a vehicle even though that ruling is not consistent with the ordinary meaning of the word 'vehicle.'

Among the other kinds of arguments cited by Summers are argument from logical forms and arguments based on various kinds of legal authorities and rulings. In addition to interpreting statutes, courts will also engage in an activity

Summers calls "gap-filling" (419). This activity may occur where, for example, a legislature delegates power to a court by proposing statutory guidelines, but to follow the guidelines the court has to interpret them in light of the purpose of the statute. In still other cases, statutes may be so silent, ambiguous, vague, general, or otherwise unclear that no definitive decision can be reached on how to interpret the statute (441).

Many of these types of argumentation have been recognized in argumentation theory as having a particular form. When such an argument is used in a particular case in law, it should only be regarded as correct (reasonable) if the way it was used meets the requirements specified by its logical form. Many of these forms of argument, including most of the ones in the list of ten above, will be described in Chapter 2. For the present, it is sufficient to get a glimpse of the kinds of arguments that are frequently used in legal cases to draw conclusions based on the interpretations of statutes and documents. It should also be noted that many of these arguments have to do with definitions and with the meanings of words and phrases. Such arguments are often thought to be trivial or unimportant. But in fact, in legal reasoning especially, they are especially important, and great care must be taken with them.

3. STAGES OF A TRIAL

Legal disputes can be resolved by various means, but the most prominent means for this purpose within the legal system, and the most visible to observers of the legal system, is the trial. All of us have seen trials, or perhaps have even taken part in them, and we all have at least a rough idea of how the trial works. There are always two opposed sides in a trial, and each side presents arguments with the aim of persuading the trier, the person or persons who decide the outcome of the trial, that its contention is proved by the evidence in the case. In the Anglo-American legal system, and in many systems of law, the trier will be a judge or a jury. There are many differences between trials in civil and criminal cases, but they share some common features. In Section 3, the common features are described. In Section 4, some differences between criminal law and civil law are explained.

There are established procedures not only for conducting a trial but also for conducting the processes leading up to the trial and the follow-up of the outcome. The whole process takes the form of a series of stages, each of which has rules of procedure for its proper conduct. The purpose of a trial is to resolve a conflict of opinions or claims about some issue that comes within the scope of law. A claim, according to Howard and Summers, is a demand for something

to which the claimant thinks herself "entitled" and is always made against another party (1965, 55). For example, two parties could both claim ownership of some goods, and if there is no clear or established way of deciding ownership, it could be necessary to resolve the dispute by going to a trial. However, most legal systems provide for the possibility of a hearing before a judge, at which the judge can decide whether there is a legal ruling that would resolve the issue without the necessity of a trial.

The first stage of a trial is a pleading stage in which one party (called the plaintiff) files a "complaint," in a civil case. In a criminal case, the state employs legal officials—police or prosecutors—to bring a charge against someone (called the defendant) who has allegedly violated a law. The complaint or charge is then drafted by the plaintiff's attorney in a document that gives the reason for the legal action, and makes some demand for compensation (Howard and Summers 1965, 58). The defendant is then informed of the allegation made against him, through a "summons," and is given a chance to reply. The charge or complaint has two parts. One is a factual allegation about the defendant's particular actions or circumstances, while the other part is a claim that these alleged facts constitute a violation of some law. The defendant can reply by conceding the claims made by the plaintiff, or by denying some or all of them. A reply of denial constitutes a conflict of opinions between the two parties of the kind that leads to a trial. During the pre-trial stage between the pleading stage and the actual trial, the two sides may try to negotiate a settlement. During this stage, both sides will also collect evidence by conducting an investigation to find suitable witnesses, and other forms of evidence.

Thomas Gordon constructed a computerized model of legal pleading called the pleadings game (1995). The purpose of playing the pleadings game is to identify the legal and factual issues of a case. The pleading stage is the first in a series of civil proceedings. The other three stages are the discovery stage, the trial stage, and the appeal stage (109–10). The pleadings game takes the form of a dialogue in which two parties, called the plaintiff and the defendant, take turns making moves. The plaintiff begins by filing a complaint. The defendant can continue the dialogue by filing an answer. The answer admits or denies the complaint, or makes a motion to dismiss it (111). The argumentation in the pleadings game takes the form of a dialogue, and Gordon's thesis is that legal argumentation generally can be seen as a dialogue process.

The prominence of argumentation in the legal system is easily appreciated by anyone who has seen a trial. The two sides form up and present their best arguments for opposed conclusions. The Anglo-American system in particular is called adversarial, meaning that in a trial, the contention advocated by one side is opposed to the contention advocated by the other side. Both sides can't

be right. In proving its contention, each side must, in effect show that the other side has failed to prove its contention. The purpose of the trial is to resolve the dispute one way or the other, and the method is to determine which side has the stronger, or more persuasive argument to prove its contention. There are rules that govern what kinds of arguments need to be used to prove a contention in a court of law, and also rules about what kinds of arguments are excluded.

In many trials, there is no dispute about the law in a case but there is "vigorous dispute as to the facts" (Howard and Summers 1965, 67). In many Anglo-American jurisdictions, the plaintiff's lawyer has the choice of trying the claim before a judge or a jury. While the judge presides over the proceedings, both sides will present their evidence, after making "opening statements" in which they outline their side of the case, and show how they will prove their contentions. Much if not all the evidence will be presented in the form of testimony by witnesses. Evidence can be presented by a special class of witnesses who are expert witnesses. They may be physicians, ballistics experts, scientists, or any individuals who have specialized knowledge or skills in various domains of expertise.

Once the trial is over, and the court has arrived at a decision, the defendant cannot be tried over again on the same charge. This rule about the conclusiveness of a trial is called "double jeopardy."[3] An appeal can be made, but only if it can be shown that there are sufficient grounds for it, and will be permitted only if new evidence has come to light that was not available to the previous trier.[4] The appeal is considered by an appellate court, which normally consists of several judges (Howard and Summers 1965, 82).[5] Once a trial is over, there are various post-trial procedures that may concern matters of sentencing, or financial matters of how the judgment is to be satisfied.

4. CIVIL LAW, CRIMINAL LAW, AND BURDEN OF PROOF

Criminal law sets out limits of permissible behavior by defining crimes and setting out penalties to be applied to cases where a crime of some particular type has been committed. Some crimes, like murder, require proof not only

3. Double jeopardy applies only to criminal cases, while the comparable notion of *res judicata* applies to civil cases.

4. An appeal might also be permitted on the grounds that the trial court made a mistake of law.

5. The appellate court would judge whether the alleged mistake of law, or new facts, are sufficiently important to warrant a new trial. If the appellate court decides a new trial is warranted, it will remand the case for a new trial.

that some form of action has taken place (killing) but also that the accused party had a certain kind of intention in performing the act (the intent to kill). In general, the argumentation in a criminal case will center on some act or omission to act that (allegedly) happened in the past. In many ways, argumentation in criminal law is comparable to argumentation in history. Both are about past actions that need to be interpreted and judged in light of human intentions. But since the act itself can no longer be directly observed, the evidence concerning it tends to be mainly testimonial in nature, based on what participants or other witnesses now say about the act. However, in the case of argumentation in a criminal case, the carrying out of that act will (allegedly) be a contravention of the criminal law. Much of the argumentation will concern the goals or intentions that the defendant (who allegedly committed the act) had in mind at the time, and about whether the defendant can be shown to have had a "guilty mind." Hence, the argumentation in a criminal case tends to be largely about claims concerning the interpretation and understanding of the mental aspect of some past human action. Such claims are hard to prove, beyond all reasonable doubt, and so to prevent the very real possibility of endless disputation, the criminal law must set reachable requirements for proof that are realistic, but fair. How such argumentation works is that the criminal law tells the jury to presume intent from observable behavior. A rule of presumptive inference is invoked: everyone is presumed to intend the natural consequence of his or her actions. For example, if Jones fires a gun in the direction of Smith, by presumptive inference the jury would be entitled to draw the conclusion that Jones had an intention to harm or kill Smith.[6] The fact that legal argumentation depends on this rule of presumption will later on be shown to be vitally important in seeing how legal argumentation is based on plausible reasoning. Legal evidence will be shown to depend on this kind of plausible inference.

Civil law sets out rules for determining the fulfillment of agreements (contracts), or for determining when one is liable for injuries or other faults (torts). In a criminal trial, guilt is at issue. In a civil trial, liability is at issue. A practical problem in many trials is that the evidence may simply not be sufficient to conclusively prove beyond all doubts that the claim of one side is true and that of the other side is false. For example, in a criminal case, the action at issue may have happened a long time ago, and there may be no physical evidence that has

6. The U.S. Supreme Court has twice reversed criminal convictions in which the instruction was given to the jury that a person should be presumed to have intended the normal consequences of his actions. In the *Sandstrom* case, the trial judge instructed that there was such a presumption, and the Court said that the judge had removed one of the elements of murder from the jury's consideration. In the *Baldwin* case, the presumption was said to exist, but to be rebuttable, and the Court said that there was an impermissible shift of the burden of proof to the defendant.

not been destroyed, or any witnesses who still remember much about what happened. In other cases, there may be no witnesses other than the defendant and the plaintiff, and no physical evidence that could corroborate the one story or the other. Still, the court must reach some decision, one way or the other.

The way the criminal courts deal with this problem is by the principle popularly known as the "presumption of innocence." In effect what is done is to set the burden of proof in an asymmetrical manner. Burden of proof is the strength or weight of proof required to prove a conclusion (Prakken 1991). The question answered is how strong does an argument have to be, in order to prove the conclusion that is supposed to be proved in a given case. In the criminal law, proving that the defendant is guilty of the crime she is alleged to have committed requires that this conclusion be established "beyond reasonable doubt." The term "reasonable" is attached because it is not possible to prove any claim about past conduct beyond all doubt. What the standard requires is that any doubt that remains should be so insignificant that a reasonable person would nevertheless believe that the accused has committed the crime. According to the Fourteenth Amendment to the U.S. Constitution, all U.S. citizens are guaranteed the right to this high standard of proof in a criminal court.

What do we mean when we say that this way of apportioning the burden of proof is asymmetrical? It means that although the prosecution must prove its case beyond a reasonable doubt, all the defense needs to do in order to win is to raise questions sufficient to show that the prosecution has not fulfilled its burden of proof. You could visualize it as a balance or teeter-totter that is high on one side, and correspondingly low on the other side. The job the prosecution needs to do in order to win is relatively hard, while the job the defense needs to do to win is relatively easy, other things being equal. Supposedly, the purpose of this way of setting the burden of proof in a criminal trial is to prevent the conviction of too many innocent people. The reality is, that because of human error and immorality—for example, in cases where accusers lie, and lay false charges—and because of the fallibility of legal argumentation generally, in many cases, as noted above, it is inevitable that a certain number of innocent people will be convicted. It is not practically possible to eliminate this harmful outcome altogether, so the best that can be done, realistically, is to balance it off against the opposite harm of letting too many persons who are guilty of crimes go free. To put the point in a somewhat paradoxical way, justice requires the conviction of some innocent people, but it also requires that the number of such people should not be too high. Hence the reason for the asymmetrical burden of proof in a criminal case.

The burden of proof in a civil case, in contrast, is symmetrical. What the trier needs to decide in a civil case is which side has the claim that is more likely

to be true, on the basis of the evidence presented in the case. The standard here is called preponderance of evidence. Here you could visualize the situation as a balance in which the two sides are level with each other. But if the one side can bring a greater weight of evidence to support its side, thus tipping the balance to its side, it will have won the case. In a suit for damages in a civil trial, the so-called burden of persuasion is generally held to be placed on the plaintiff's side. But if the two sides remain evenly balanced at the end of the trial, it should be ruled that the plaintiff has failed to fulfill the requirement of burden of proof. Therefore, it will be judged that the defendant has won the case.

The device of burden of proof, as used in law, is based on the reality that in some, or even many, cases, the trier does not know all the relevant facts. And indeed, in some cases, as noted above, it may not be possible to come to know all the facts that would be required to prove the claim of the one side or the other beyond all doubt. In such cases, however, we can for reasons of safety, to minimize the risk of convicting too many innocent people, base our evaluations of arguments on what is called default reasoning in computer science. In knowledge-based reasoning in computer science, if you are searching through a database and do not find some proposition in it, you can sometimes infer, on a basis of not finding it, that it is not in the database. For example, if you know that the database contains all the latest up-to-date information on which countries produce diamonds, and you do not find any information that Canada produces diamonds, you could conclude with some confidence that Canada does not produce diamonds. This default type of inference is also sometimes called a lack-of-evidence argument, because it is based on a premise of a failure to find evidence of something.

This default or lack-of-evidence type of inference has the following form as an argument. If a proposition has not been proved true by the end of an argument or case, then on a basis of the evidence we have found, and also not found, we draw the conclusion presumptively that the proposition is false (as far as we know). This kind of default reasoning is common, not only in law, but also in everyday reasoning. For example, suppose I am looking at the airport terminal listing the flights out of Winnipeg, and I see no direct flight from Winnipeg to Amsterdam listed on the screen, for the period I want leave. I may conclude by default that there are no direct flights from Winnipeg to Amsterdam during that time. From my lack of finding such a flight listed, I conclude to the presumption that none exists. Of course, this inference is based on the assumption that if such a flight were available, it would be listed on the monitor. The default reasoning in a criminal trial works in essentially the same way. If insufficient evidence has been presented to prove the defendant is guilty beyond a reasonable doubt, then the conclusion drawn by presumption, on the basis of

the given evidence, is that the defendant is not guilty. So the use of default reasoning in a criminal trial makes it possible for the trial to arrive at an outcome or decision, one way or the other. If a defendant is found not guilty in a trial, then, as far as the law is concerned, that person is not guilty. Of course, whether the person is really guilty or not, in an ethical sense, is another matter. But the law goes by the evidence, assuming that all the relevant evidence available will be collected, and presented to the court.

A third way of setting burden of proof used in some cases in law is to require what is called "clear and convincing evidence" to prove a claim. This burden of proof is higher than that of preponderance of evidence, but not as high as proof beyond a reasonable doubt. This kind of standard would be used in a case of fraud, or in a case of a dispute about the withdrawal of medical treatment where one party has presented an advance directive for the removal of life-support systems.

5. EVIDENCE

One of the most important special features in understanding legal argumentation is the way the law defines and procedurally deals with evidence. During a trial only certain arguments are allowed in for consideration, while other arguments may be excluded. The trial judge will make such decisions, based on the rules of evidence. The modern Anglo-American rules of evidence appear to have been formed mainly in the eighteenth century, when the first in a series of systematic treatises on evidence began to appear in 1761 with *Gilbert's Law of Evidence* (Gilbert 1788). Gilbert's treatise was much influenced by the work of the philosopher John Locke, and especially by Locke's theory of probability in his *Essay* (1726), which was in turn based on the ancient idea of probability. According to this ancient idea, which seems to have originated with the Sophists, a reasoner can infer that a conclusion is probably (apparently) true, based on premises that report what seems to be true in a given case. The assumption is that even though the reasoner can't be sure that the premise is true, because he might be mistaken, for various reasons, there is a line of action he can take. He can accept the premise as having a certain weight of so-called probability, which in turn transfers a weight of acceptance toward acceptance of the conclusion. "Probability" is not meant in the modern sense of statistical inference, where exact numbers can be calculated to measure a weight of acceptance. A better word for it would be "plausibility," or seeming to be true on a tentative basis, implying that acceptance might have to be withdrawn later, if new facts come to be known. At any rate, from the time of the eighteenth century the

basic idea behind all the legal treatises on evidence was that a proposition can have weight of reasonable acceptance in its favor so that a conclusion can be drawn from it by inference, and then the weight of acceptance is transferred to the conclusion. So, for example, if a witness swears on oath that some person carried out some act, this premise shifts a weight of acceptance or so-called probability to the conclusion that the person cited did carry out the act in question. Such an inference is then seen as having "probative value," meaning that it can be used to prove something. Such an inference can therefore be treated as *evidence* in favor of accepting a conclusion that is in dispute.

All the Anglo-American treatises on evidence base their concept of evidence on these key concepts of weight of acceptance and probative value. The two basic principles they begin with could be called the inclusionary principle and the exclusionary principle. They rule on what kind of evidence is "admissible" or generally allowed, and what kind of evidence is not allowed to be brought before the court in a trial, where the purpose is to resolve some issue being disputed by the two sides. The inclusionary principle says that anything that has probative value—that is, that can be used to increase or decrease the weight of probability of either of the claims at issue—is generally allowed. The exclusionary principle says that there are categories of exceptions to this general rule. Evidence must be excluded, for example, if it was obtained illegally, for example by torture, or if it has only a slight probative value, but might prejudice the jury because of its emotional impact. Hearsay is another kind of evidence that is commonly excluded. Probably the most prominent recent kind of ruling has been the exclusion of the character or past record of a rape victim as inadmissible.[7] But less prominent kinds of exclusions are common in Anglo-American trial practices. According to Mirjan Damaska, "It is daily routine in Anglo-American courtrooms to oppose admission of evidence on the ground that its significance is too slight or that its connection with material facts of the case is too remote" (1997, 140). Before commenting further on these rules of exclusion, the question of what is included as evidence must be addressed.

What should be included as evidence in a trial is determined in American federal courts by the Federal Rules of Evidence (FRE).[8] These rules are continually being updated and changed. The FRE make a comprehensive statement of what is considered evidence in U.S. law of a kind that is very important for any study or philosophical theory of legal evidence to take into account. The FRE do not themselves offer a general definition of what evidence is—

7. According to Federal Rule of Evidence (FRE) 412, evidence of an alleged victim's past sexual behavior or alleged sexual predisposition is generally inadmissible, subject to various exceptions.

8. Most state courts have enacted rules of evidence that are quite close to the Federal Rules.

supposedly evidence is whatever fits the rules—but a statement is made about the purpose of the rules (3). The "end," it is said, of the "growth and development of the law of evidence" is "that the truth may be ascertained and proceedings justly determined." This statement suggests that what you are going to find in the rules are not just means of ascertaining the truth of a matter, but also rules guiding what are considered to be fair (just) proceedings used to carry out these means. So there is an element of fairness (justice) as well as one of ascertaining truth. The FRE may be described as having two goals. One is the determination of the truth. The other is the procedural fairness of that determination. The second aspect clearly admits a pragmatic aspect in the concept of legal evidence embodied in the FRE. These rules may be seen historically as based broadly on a philosophy of common sense empiricism in the tradition of Locke, Bentham, and Mill, reflected in the conception of evidence of Wigmore (Twining 1985). But as will be shown in Chapter 4, the basic notion of probative argument and probability they are based on goes back further to ancient standards for judging arguments in Greek philosophy and rhetoric.

Relevance in the FRE (1999) is defined in Rule 401, where "relevant evidence" is defined as "evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence." The "action" is the allegation being tested by the trial. It is the proposition that is at issue in the trial, the proposition that is supposed to be proved or not by the trial. Before any sense at all can be made of this idea of relevance, one question needs to be asked. What does "more probable" mean?

The idea of probability here should be interpreted not in the modern post-Enlightenment Pascalian sense of statistical probability that we are now so familiar with. Instead, it needs to be interpreted in relation to a much older acceptance-based sense of plausibility of a kind that fell into obscurity with the ascendancy of the Enlightenment way of thinking in Western culture. As explained just above, probability in this ancient sense refers to a kind of inference based on something that appears to be true. Because the assumption in question appears to be true, a conclusion can be drawn to tentatively accept it as true, until such time as new information may lead to withdrawing this acceptance. With this kind of reasoning, it is important to be open-minded, and to be ready to give up something one previously accepted, should new evidence come in that is relevant. Appearances can be misleading, even though we do often need to draw tentative conclusions from what appears to be true.

To say that a proposition is probable, in this ancient sense, is to say that it seems to be true from what can reasonably be inferred in a given case. The inference is based on what a person would normally expect to be true in the

kind of situation represented in the case, a kind of situation with which the person is familiar. This ancient idea of plausibility has different properties from the statistical notion of probability. Instead of being based on numbers that represent the degree of likelihood of the occurrence of an event, it is based on one person relating to a situation that is normal and familiar, so that, based on common experiences, he would draw the same conclusions about it as other persons. For example, suppose that a large, muscular member of a biker gang accused a small, mild-mannered accountant of attacking him physically and stealing his wallet. This claim would be found implausible (or, to use the old term, improbable) by a jury. It would be a hard claim to accept. Presumably, the reason is that each jury member would put himself into the situation, and ask himself, if he were the accountant, would he be likely to attack the biker? The conclusion drawn would be that, other things being equal in the case, the claim that accountant attacked the biker and stole his wallet is not very plausible.

The positive criterion for inclusion, according to the FRE, is that something is admissible as evidence if it has probative value. To say it has probative value means that it can be used in a given case as a line of reasoning that would make the claim at issue in the case more or less probable. Evidence is relevant if it makes the "action" to be determined, the proposition that is supposed to be proved (or disproved), more plausible, or less plausible. What is to be included, according to the FRE, is centrally dependent on this notion of probability used in the key statements of the FRE. But now we need to return to the exclusionary rules. The key rule here is FRE 403, according to which relevant evidence may be excluded (declared irrelevant) "if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by consideration of undue delay." It is this excluding or "prophylactic" function of relevance in common law that makes this notion of relevance with its ban on hearsay, seem suspicious to outside observers (Damaska 1997, 55). What some would say here is that the legal notion of relevance in the FRE departs from the logical notion of relevance, specifically by virtue of these special legal rules of exclusion of evidence. Even the early treatises on evidence had exclusionary rules, but these rules have always been controversial. Jeremy Bentham, whose *Rationale of Judicial Evidence* was first published in English in 1827, though it was written at various times between 1802 and 1812, criticized the exclusionary rules, and argued that they ought to be discarded. It was Bentham who was most noted for his advocacy of "natural" (or logical) argumentation in law, and his opposition to "artificial" rules of exclusion that are used to bar evidence as "irrelevant" (Twining 1985). But modern evidence law has not followed Bentham's path. Instead, the direction has been to contin-

ually add more and more exclusionary rules. As more exclusionary rules are added in, the legal notion of relevance comes to resemble the logical (dialectical) notion less and less, or to depart from it more and more on what evidence is considered to be relevant in a given case.

The rules of exclusion are "peculiar to English law, and to systems derived from English law" (Ilbert 1960, 14). Systems of law on the European continent do not have rules of exclusion comparable to the Anglo-American rules. But it should not be said that contintental law is entirely free of exclusions. Continental law does have provisions that do exclude certain kinds of inferences. For example, in continental law, according to Damaska, "it is generally acknowledged as improper to assume that just because an accused has a criminal record or has committed a collateral bad act he is more likely to have committed the crime with which he is now charged." Despite having such exclusions, continental law is different from Anglo-American law in how it treats the exclusions. Where the continental evidentiary theory is different is that it does not worry about whether character evidence from a person's past might introduce an unfair bias, and it "focuses only on whether information from a person's past has probative value" (1997, 16–17). What is uniquely characteristic of Anglo-American common law is the exclusion of information that has genuine probative value, but might be misused to create an unfair bias.

6. RELEVANCE AND ADMISSIBILITY

A central feature of evidence law is the distinction between relevance and admissibility of evidence. Admissibility is a threshold idea. What is admissible is what is allowed in to be considered as evidence in a trial. But even if something is considered admissible, it may still not be considered relevant. It has always been a problem to define relevance exactly in rules of evidence. Sir James Stephen, in his *Digest of the Law of Evidence* (1876), tried to define relevance as causality, but this definition was found to be too narrow (Ilbert 1960, 13).

What could be called the definitive account of admissibility and relevance is to be found in the first volume of John Henry Wigmore's ten-volume work on evidence, *A Treatise on the Anglo-American System of Evidence in Trials at Common Law* (1940). A revised edition, re-titled *Evidence in Trials at Common Law* (1983), contains lengthy footnotes by the editor, Peter Tillers, that explain much of the background history of logical and philosophical controversies on the subject. Chapter 3 of volume 1a is titled "General Theory of Relevancy." One lengthy section on modern theories of relevancy from 1931–81 chronicles a series of theories of relevance that attempted to use logical tools to model the legal

notion of relevance (Wigmore 1983, 1104–95). To anyone interested in relevance, the development of these grand theories of relevance is fascinating. But there has been so little interest in the subject recently that this literature has fallen into obscurity. Yet Wigmore's theory of relevance, an important part of his theory of evidence, has been influential in the development of legal rules of evidence. Wigmore based his theory on the ancient idea of probability, according to which a proposition may be said to have "weight" and "probative force" in supporting a conclusion through a process of inference. Relevance is a matter of logic, rather than being strictly a matter of law, and may be defined as a relation between an "evidentiary fact" and a *factum probandum* (the proposition to be proved in a trial). An evidentiary fact is relevant if it has probative force, that is, if it can be used to prove or disprove the *factum probandum* at issue in a case.

Wigmore's analysis of evidence has been controversial, and has often been criticized by legal scholars—especially his theory of relevance (Twining 1985, 155). Wigmore raises the controversial question of how logical relevance and legal relevance are related to each other. The relevance theorists cited by Tillers hotly disputed this question. Jerome Michael and Mortimer Adler tried to analyze logical relevance using deductive logic (1934), but the analysis was found to be too abstract and "metaphysical" to have much appeal to Wigmore (Wigmore 1983, 1005). But Wigmore was also influenced by George James, who also used deductive logic to define relevance (1941), but in a clearer, simpler way. Wigmore's chapter on relevance shows that he was very well aware of developments in logic. In fact, he was a man well ahead of his time in his views on logic, and his use of logical techniques. The techniques he used to model relevance are remarkably similar to methods now used by the modern informal logic movement. For example, one can cite his use of evidence diagrams and inferential chains (Wigmore 1983, 1035). This connection is especially interesting because the basic principles of the modern Anglo-American rules of evidence are broadly based on the kind of logical framework that Wigmore advocated. Wigmore presented a theoretical framework in which the legal concept of evidence was based on an underlying logical concept of evidence. And in fact, I would go so far as to say that the basic logical structure underlying the modern rules of evidence would be impossible to make much sense of at any level of generality as logical rules of argumentation without Wigmore's careful analysis. The underlying structure mapped out by Wigmore was built around the basic concepts of probative weight, admissibility, materiality, sufficiency, and relevance. One can easily see the fundamental importance of these concepts in the most basic rules and definitions in the Federal Rules of Evidence.

The concept of relevance is an important component of the notion of evidence defined by the Federal Rules of Evidence. As noted in Section 5, relevant evidence is defined by FRE Rule 401 (1999) as "having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence." The "action" refers to the allegation that is supposed to be proved by the prosecution or disproved (or shown to be doubtful) by the defense. It is the proposition that is centrally at issue in the trial. The purpose of the trial is to see whether this proposition can be proved or not. What is "a fact that is of consequence to the determination of the action"? It would be (1) any proposition that is part of the body of data or facts collected by whatever means are judged to be appropriate, (2) that can be used, in conjunction with logical reasoning, to derive a conclusion that can be inferred (as a consequence) by the combination of these two components where (3) that conclusion makes the proposition centrally at issue more probable or less probable.

The concept of relevant evidence, as characterized by FRE 401, can be analyzed by using the three basic components of Wigmore's theory of evidence. These three components are the initial body of data or "facts" used as premises, the inferences used to draw conclusions from these premises, and the use of a chain of such inferences to draw out a line of reasoning (chain of inferences) that makes more (or less) probable some proposition that is in doubt, and which needs to be settled. What is especially important is to keep in mind the distinction between relevance of evidence on the one hand, and the related aspects of weight and sufficiency of evidence, on the other hand. According to Christopher Mueller and Laird Kirkpatrick, the requirement of relevance is "the most fundamental evidentiary principle" in law (1995, 247). Relevance is the "primary threshold that must be made for each item of proffered evidence" (248). While relevance is "primarily a question of admissibility" of evidence in law, "weight" refers to the "persuasive force" of the evidence, once it has been admitted. "Sufficiency" refers to the "quantum and persuasive force necessary" to support a finding in favor of the party who has produced the evidence, and to avoid adverse orders, like dismissal (250). This three-way distinction is important, not only for legal evidence, but also for the concept of evidence generally.

Relevance is a matter of how evidence is being used in a trial, to bear on the global issue at stake in the trial. In contrast, "weight" refers to the likelihood or probability that a proposition is true. A weight of evidence in favor of a proposition can be shifted upward or downward when it appears as the conclusion of an inference in which other propositions (which also have weight) appear as premises. If the inference is structurally correct, and the premises have

sufficient weight, the inference can be used to prove the conclusion. Sufficiency is the amount of weight of probability needed to reach the threshold required for some purpose of use of the evidence—and in particular whether the evidence is weighty enough to meet the appropriate requirement to fulfill the burden of proof in dialogue. The foregoing brief summary represents the main components in evidence, and shows how they work together to provide evidence of a kind that can be used to prove something in a trial, or some other legal context.

The Federal Rules of Evidence go on to say (Rule 403) that relevant evidence is generally admissible in a trial, and irrelevant evidence is generally inadmissible, but that there are exceptions. Character evidence is generally not admissible to prove conduct (Rule 404), but there are several kinds of instances in which character of a witness is admissible. If character is a material issue in a civil trial, for example in a negligent hiring or negligent entrustment case, then character would be relevant (Landon 1997, 584). Rule 404 also allows a defendant in a criminal trial to offer evidence of his own good character. And once these floodgates are opened, the prosecution can then introduce relevant evidence of the defendant's bad character. Rule 404 also allows that character, in the form of evidence of other crimes, can be admissible in order to prove motive, opportunity, or plan (586). Another exception to Rule 404 is that the character of a witness may be attacked in order to raise questions about the testimony of the witness. In short, there are several key exceptions to the ban on character evidence.

Attacking the credibility of a witness, called "impeachment" in law, can be done by attacking the character of the witness, but one restriction (Rule 608) is that "the evidence may only refer to character for truthfulness or untruthfulness." This aspect of the legal concept of evidence embodied in the Federal Rules is based on the assumption that the credibility of a witness plays a proper role in judging the weight of evidence that should be given to the testimony of that person. Even more generally, the assumption is that the witness is a person who is presumed to be an honest participant in argumentation collaboratively taking part in a discussion with other persons who will draw inferences from what she says. In witness testimony in a trial, the body of data that is the premissary basis of the evidence is the say-so or testimony of the person who has taken on the role of witness. When this data is brought forward for the consideration of another person who is supposed to be the user of that evidence for some purpose, the credibility of the first person needs to be taken into account in assessing the probability (as evidence) of what she says. The practical reason behind this assumption is that people sometimes lie in a trial—that is, they commit the crime of perjury, meaning that they intentionally and knowingly

give false testimony. Evidence that a witness may be lying, or giving testimony that is not probable, is therefore rightly considered to be relevant. One legitimate way to judge a person's credibility is to use any available information about her character that enables one to draw a conclusion about the plausibility of what she said. So character can be relevant in a trial.

7. TESTIMONY OF WITNESSES

Most of the evidence brought forward in a trial is in the form of witness testimony. The witness takes an oath to tell the truth, and then is required to answer questions put by the attorneys on both sides. Either side may have a subpoena issued to see to it (or make it more likely) that the witness appears in court. Witnesses are generally presumed to be competent, but it can be argued that a witness is not competent if it can be shown that there is something, like "mental disease" that prevents her from remembering what she is supposed to testify about. A witness is expected to answer questions put to her, but according to "privilege," she may decline to answer if doing so might have a tendency to expose her, or her spouse, to some criminal charge or penalty (Ilbert 1960, 20). The famous fifth amendment to the U.S. Constitution is often cited in the form, "I refuse to testify on the grounds that it may tend to incriminate me." There are other exceptions allowed as well. Information given in communication in a marriage, or information that might reveal the names of some sources, may be withheld.

Something called "hearsay" is generally not admissible as evidence in a trial. Hearsay could roughly be described as secondhand evidence through reported witness testimony. Hearsay occurs when one person reports to a court that she heard someone else declare some statement, and offers the hearing of this declaration as evidence that the assertion is true. According to Federal Rule of Evidence 801, hearsay is defined as "a statement, other than one made by the declarant while testifying at the trial or hearing, offered in evidence to prove the truth of the matter asserted." This definition seems clear, but many variants on it have been suggested.

None of the many attempts to define hearsay has resulted in a generally accepted definition. Three attributed definitions are cited by Carl C. Wheaton ("What Is Hearsay?" in Younger, Goldsmith, and Sonenshein 1997, 451). According to Dean Ladd, "hearsay consists of a statement or assertive conduct which was made or occurred out of court and is offered in court to prove the

truth of the facts asserted." According to Dean McCormick, hearsay is "testimony in court, or written evidence, of a statement made out of court, such evidence being offered as an assertion to show the truth of matters asserted therein, and which rests for its value upon the credibility of the out-of-court asserter." In the view of Professor Morgan, hearsay "includes the evidence of any conduct of a person, verbal or nonverbal, which he intended to operate as an assertion, if it is used to prove that the assertion is true or that the asserter believes it is true, unless it is subject to cross-examination by the one against whom it is used at the trial at which it is offered." From these varied definitions, the characteristics of hearsay are indicated. It must be a statement offered to prove something asserted in court. It must be a statement asserted by some particular person, or attributed to that person. And third, that person is not actually present in court, in such a way that he can be questioned about the assertion.

The last clause is significant. Suppose that a statement was reported in court to prove that it was evidence of the publication of a slander. According to Charles McCormick, this kind of evidence would not be considered hearsay ("The Borderland of Hearsay," in Younger, Goldsmith and Sonenshein, 1997, 461) because the purpose is not to prove that the facts are as asserted in the statement. The reason that hearsay is generally not held to be admissible in a trial is that there is a problem with examining the witness who allegedly made the statement, assuming that this person is not present in the court to be questioned. Now that the reader has been introduced to the idea of hearsay, many qualifications need to be added. There are many exceptions to the general rule that hearsay is inadmissible as evidence. The first category of exceptions (FRE 803) involves cases where the availability of the declarant is immaterial. For example, a statement made by a patient for purposes of medical diagnosis, insofar as it is relevant to the diagnosis of that patient, might not be excluded by the hearsay rule. Rule 804 covers cases where the declarant is unavailable, for example, through lack of memory, or inability to be present and testify.

The reason that hearsay is generally excluded as evidence is that unless the declarant is present in the court to be questioned, it becomes impossible to test out the plausibility of the assertion she was reported as declaring. An examiner can't ask her exactly what she said, what she meant by it, if she really stands behind that statement, and so forth. Barring the possibility of testing out this kind of reported assertion, all kinds of innuendo and inaccurate suggestions could be taken as evidence. The process of examining a witness in court is important, not only for collecting assertions, but for testing them out to see how plausible they are, and how convincingly the witness can give a credible and accurate account of what she supposedly saw or heard.

8. EXPERT TESTIMONY

Experts are often called in to courts to give testimony on all kinds of questions in different fields of expert skill or knowledge like ballistics, fingerprinting, handwriting, medical matters, and so forth. Normally when a lay (nonexpert) witness testifies in court, she is allowed to testify only to the facts, as she observed them, and she is not entitled to draw inferences from what she saw.[9] According to FRE 602, "A witness may not testify to a matter unless evidence is introduced sufficient to support a finding that the witness has personal knowledge of the matter." An expert has personal knowledge of matters that a layperson is not in a position to know about. He or she is allowed to offer opinions, within the field of knowledge in which she is an expert, based on inferences drawn from what was observed. Experts are regarded as having special skills and knowledge that the layperson does not have direct access to. An expert may have to interpret evidence, or draw conclusions about it, in order to give testimony on matters where the expert has personal knowledge. It is important to be aware that, from a legal point of view, expert testimony is a special category of testimony in which there is more latitude given for the witness to draw inferences.

More and more of the evidence used in trials takes the form of expert testimony, of one kind or another. It has become routine to rely heavily on scientific evidence, such as DNA testing, where someone without a scientific background can hardly understand exactly how the test works, let alone evaluate whether it has been applied correctly in a given case. Another form of scientific evidence that has become commonplace in modern trials is the use of psychiatrists, psychologists, or other social or medical scientists, to determine whether a defendant can be said to have been "insane" at the time he committed a crime. In such cases, it has become almost routine to have a "battle of the experts," where the experts on one side all say that the defendant was sane, while those on the other side all claim that he was insane. This situation is so common because these experts are paid by the side who uses them as a witness and of course, lawyers can generally shop around and find some expert who will support their point of view.[10] But now so many publicized trials have exhibited this classic

9. Even here there is a qualification. According to FRE 701, a witness not testifying as an expert is allowed opinions or inferences in two kinds of cases: where the opinion or inference is "rationally based on the perception of the witness" and where the opinion or inference is "helpful to a clear understanding of the witness' testimony or the determination of a fact in issue."

10. FRE 704(b) forbids an expert witness testifying about the mental state of a defendant from stating an opinion or drawing an inference about whether the defendant does have that mental state or not. This rule prevents physicians from testifying about an ultimate mental state, like insanity, that is an element of a charged crime.

battle of the "mental illness" experts, even on several famous televised trials watched by huge audiences, it is to be expected that people have become a little cynical about the objectivity of this kind of evidence, as used in the legal system.

Another reason that conflicts can arise in expert testimony is that scientific theories, techniques, and findings are subject to change—quite rapid change in some instances. If a scientist is out of date, then her opinion may conflict with that of another scientist who is aware of the latest techniques. This kind of conflict is a frequent source of serious problems.

In a landmark case, *Frye v. United States* (293 F. 1013 D.C. Cir. 1923), the Court of Appeals for the District of Columbia rejected polygraph evidence on the grounds that the polygraph (in this case an early version of what became the polygraph or "lie detector") had not yet gained general acceptance among scientific authorities. The judge in the *Frye* case proposed the rule that a scientific theory or test should only be allowed to count as evidence in court if it is "sufficiently established to have gained general acceptance in the particular field in which it belongs" (Imwinkelried 1986, 22). The *Frye* rule became the standard test in the majority of U.S. federal courts for over fifty years. But critics held that it is too conservative, citing new scientific techniques that ought to be counted as good evidence even though they have not yet reached the stage of general acceptance in the scientific community. In 1993, the *Frye* test was overruled in the famous case of *Daubert v. Merrell Dow Pharmaceuticals* (509 U.S. 579). The *Daubert* ruling was generally taken to signal the move to a more relaxed standard than the general acceptance criterion of the *Frye* rule. When Congress enacted the Federal Rules of Evidence in 1975, the *Frye* rule was not mentioned, and many courts took this to imply that it was no longer the criterion for judging expert scientific evidence. Since that time, the trend has been toward a gradual loosening of the rules governing what sorts of expert opinions may be used as evidence (Imwinkelried 1986, 22). The trend at this time seems to be for more state courts to follow the direction of *Daubert* rather than *Frye*. The trend toward a loosening of the expert opinion criterion means that now in many courts the opinions of scientists can be accepted as evidence even if they are not generally accepted in the particular field in which the expert is testifying.

9. EXAMINATION

The framework within which the evidence is elicited from a witness in a trial is called "examination." First, the attorney representing the side who has called forth the witness examines the witness by putting a series of questions to her.

This activity of questioning and replying typically takes the form of a connected sequence, in which each question and reply tends to be dependent on the previous exchanges. Then the attorney for the other side may have her chance to ask questions of the witness, called cross-examination. Finally, the witness may be questioned once again by the "friendly" side. By means of such a process taking turns in questioning of the witness by both sides, the evidence is introduced in the trial, and it can then be considered and evaluated by the court.

It might initially seem that this process of examination of witnesses in a trial is a kind of information-seeking dialogue, but there also tends to be a persuasive aspect to it that can be highly visible in some cases. Particularly in the Anglo-American system, the process of examination has a strongly adversarial aspect. Ilbert describes examination as a "duel," or "conflict between the two contending parties" in which each side tries to not only establish its own evidence, but to "break down" the evidence of the other side (1960, 21). Cross-examination is described by M. B. W. Sinclair as a "probing, prying and pressing form of inquiry" (1985, 384). These practices are different in continental trials, where conflicting witnesses may actually "stand up together" and be "confronted" with each other (Ilbert 1960, 20), suggesting more of a collaborative attempt to get the witness testimony to converge toward agreement on the facts.

Many of the rules governing the process of examination of a witness appear to be logical in nature, and are very interesting from a logical point of view. Questions are supposed to be relevant; that is, questions asked are supposed to be confined to matters bearing on the main question at issue. The credibility of the witness is recognized as important, and in cross-examination, questions that test the accuracy or credibility of the witness are generally allowed as relevant (within limits). The character of the witness, especially his character for veracity, can be the focus of relevant questioning. As noted above, the credibility of a witness can even be attacked by impeachment.

Cross-examination of a witness makes use of tactics of questioning that can be used to reveal the bad character for veracity of the witness. Once the witness is revealed as a liar, in other cases, or on any occasion, there is a transference effect in which an inference is drawn to the present case. What is implied to the trier is that the witness may now be lying. The credibility of the witness is undercut, and the trier will then draw the conclusion that what the witness has testified is not plausible. If a witness asserts a particular proposition as being true, then the trier will and should operate on the assumption that this proposition is plausible, at least to some degree, all else being equal. An assumption of plausibility is drawn on the basis of argument from position to know. But such an inference is defeasible. For example, if there is evidence that the witness is lying, the credibility of the witness is reduced. The new inference drawn is that

what the witness now asserted as true is a proposition that will no longer be judged to be so plausible. But, of course, a witness is not likely to admit that he has lied. So the skill of cross-examining such a witness is to use a connected sequence of questions to lead toward a situation where the witness will be caught up in damaging concessions revealing lack of credibility.

Marcus Stone shows how indirect tactics can be used in cross-examination to lead a witness into a trap that will expose his poor character, leading to a loss of his credibility as a witness (1995, 166). The sequence begins with a casual series of questions:

Q: I won't keep you long Mr. Jackson, you probably don't enjoy being here, do you?
A: No, I don't much.
Q: Is it a new experience for you?
A: Yes.

Suppose the witness has lied at his last move. Stone advises trying to make the witness commit himself, by continuing as follows.

Q: So you've never been in court before.
A: Never.
Q: And so you've never been in trouble before.
A: No.

In a case where the cross-examiner has evidence of previous convictions, Stone advises putting only one of these convictions to the witness "which he will have little choice but to admit." It will then be made evident that the witness has lied, and this admission can be exploited by a further line of questioning.

Q: Why did you say that you had never been in trouble before?
Q: Why had you forgotten about this?
Q: You were put on probation for a year, weren't you?

The point of using these tactics of cross-examination is not just to show that the witness has bad character but to show that the witness is willing to lie in a trial. Once that has been shown, "the credibility of his evidence will be in shreds." Stone even shows how a different line of questioning tactics can be applied in a case where the witness admits his previous convictions.

Q: So you admit that you were convicted of car theft on that occasion?
A: Yes, I was.

Q: Did you plead guilty?
A: No.
Q: So you denied your guilt, and the court found you guilty nevertheless?
A: The court got it wrong.

What the questioning has shown, in this case as well, is that the witness has maintained something that, on the evidence, has been shown to be false. Once again, the questioning shows in a damaging way that the witness has lied.

10. DEPENDENCE ON PRECEDENTS

In practice, a version of precedent exists in all systems. But an important feature that is distinctive of Anglo-American legal argumentation is the explicit use of rulings on precedent cases to support a decision in a new case. If an attorney can cite a prior case of the same kind as the present case at issue that was decided in favor of his side (especially by a higher court), that finding is regarded as a strong argument. So the compiling of previous significant cases, especially important precedent-setting cases, is a vital body of legal evidence. In the Anglo-American system of common law, previous decisions are actually binding, in some cases, on courts dealing with a similar case. In other legal systems, this feature is not so explicit. In continental civil law, a decision made in a previous case is not actually binding on a similar later case. According to Dennis Lloyd the historical background of this practice of sticking to precedent (called *stare decisis*) can be traced to an English tradition of treating judicial opinions as being authoritative pronouncements, due to the power and prestige of the royal judges (1964, 273–74). Insofar as there is reliance on precedent cases to arrive at a decision, legal reasoning is a species of case-based argumentation.

The basis of argumentation from a precedent, even when this kind of argumentation is used outside a legal framework, is one of fairness. For example, if a student hands in an essay a week late, she may argue that she knows of another student who handed his essay in a week late, and was not penalized. She might argue, using argumentation from precedent, that her late assignment should not be penalized either. If the professor cites an excuse given by the first student, the second student may state that she has the same excuse. If the professor still refuses to concede that there should not be a penalty for a late essay in her case, she will argue that his ruling is unfair. So here, even outside a strictly legal framework, the argument from precedent carries quite a strong weight in

shifting the burden of proof in the exchange. Unless the professor can show that the two cases are different in some significant respect, he is obliged to be consistent.

Argument from precedent is based on an argument from analogy between two supposedly comparable cases, which in turn is based on a comparison between two things or situations. Of course, any two distinct things or situations will be similar in some respects and dissimilar in other respects. And there are an unlimited number of ways the two particular cases have similar, as well as dissimilar, characteristics. But some of the characteristics are more significant, or carry more weight, with respect to an argument from analogy, than others. An argument from analogy will be persuasive if the proponent can put together a set of characteristics that hang together, producing a "rationale" for the conclusion that is to be proved. It is the same in legal arguments from precedent. The precedent cited has to be arguably similar to the case at issue in the key respects that give sufficient weight to drawing the same conclusion in the second case that was drawn in the first case.

The way argument from precedent is used in law is based on argument from analogy, but the analogy is used in a certain way. It is not just the number of ways that the two cases are similar or dissimilar that determines how strong the argument from analogy is. Three cases cited by Patrick Hurley can be used to illustrate this point (1997, 510):

> *Vasser v. Schaffer*
> Liz Schaffer negligently failed to maintain the brakes on her car, and as a result, her car crashed into one driven by Mary Vasser. Mary was taken to the hospital for bumps and bruises, but while she was there, doctors mistakenly amputated her perfectly healthy leg. Mary sues Liz for loss of her leg.
>
> *Sacco v. Lane*
> Lane negligently used gasoline to light his barbecue in a strong wind. The flames from the barbecue ignited nearby trees and then spread to ten houses in the neighborhood, burning them to the ground. The court ruled that Lane was liable for damage to the houses.
>
> *Hunt v. Gomez*
> Hunt was a passenger in a taxi driven by Gomez. Gomez was drunk and negligently let Hunt out at the wrong corner. While Hunt was walking home, a worker dropped a brick from a building that was under con-

struction, injuring Hunt. Hunt sued Gomez for injury resulting from the falling brick. The court ruled in favor of Gomez.

As Hurley explains, it is an accepted legal rule that a negligent person who causes an injury to another person is liable for that person's injuries. However, it is sometimes difficult to determine the causal extent of a negligent action. So legal reasoning has developed the idea of proximate cause to limit the scope of liability in this kind of claim. The problem in the case of *Vasser v. Schaffer* is to determine whether Liz proximately caused the loss of Mary's leg.

You might think that legal reasoning would approach this problem by comparing both of the other cases to the problem case, and then listing the respects in which each other case is similar to, or dissimilar to the problem case. But that is not how legal reasoning actually would use the other two cases as precedents to argue out this problem case. Instead, what would happen is that the attorneys on both sides would look for the rationale, the underlying reason why one case was judged one way and the other was judged the opposite way. They would see that both outcomes were judged in terms of foreseeability. In *Sacco v. Lane*, the principle on which the judge based his reasoning was that Lane should have reasonably foreseen the dangerous consequences of his action. But when you look at *Hunt v. Gomez* in this light, the same element of foreseeability is not there. Gomez had no way of reasonably foreseeing the outcome of Hunt being injured by a falling brick from a construction site. Normally people who walk home would not be injured by a falling brick from a construction site. It is not something a reasonable person would normally anticipate as a significant factor to take into account when deciding whether to walk home or take a cab home. So when we turn to the problem case of *Vassar v. Schaffer*, the issue of whether Liz proximately caused the loss of Mary's leg turns pivotally on the relevant subissue of whether Liz should have reasonably foreseen the loss of Mary's leg as an outcome of her failure to maintain her brakes.

The decision in the problem case turns on what could be called a question of probability, meaning a judgment of what a reasonable person should see as a likely outcome in a particular situation, relative to the normal kind of cases that we all deal with on a daily basis. This kind of probability is not statistical, but is a question of what one should reasonably expect what is called a "reasonable person" to conclude as likely or expected in a normal kind of situation. Those who have to judge the outcome of the problem case are also reasonable persons (presumably) in the same sense, and they can base their judgments on what should normally be expected in such a case. In other words, the kind of reasoning used to judge the case involves the triers putting themselves in the

situation, and judging what can and should be expected to be reasonably foreseen as a likely outcome in that situation.

The argumentation used to come to a decision, and to argue for both sides of it in court, is case-based, and is based on comparisons of prior cases (that have already been decided) to the problem case. But, as indicated above, the argument from analogy can pivot on a particular principle, or *ratio decedendi*, that has been appealed to in arguing out the prior cases. In this case it is the principle of foreseeability. The issue is one of what a reasonable person should be held to foresee as being proximately caused by his own actions in a case where another person turned out to be harmed by those actions. Such a question pertains to a judgment of what one would reasonably expect to be a probable outcome of something one does in a normal situation that we are all familiar with, like lighting a backyard barbecue, or maintaining the brakes in the car one drives every day.

Two qualifications need to be added here. The first concerns arguments from analogy where no underlying rationale is evident. If a rationale like foreseeability is a principle that connects two analogous cases, then this principle will be an important factor in drawing inferences on how to argue from analogy in a legal case. But such a rationale is not available in every case of an argument from analogy. In some cases, concrete intuitions outstrip our ability to make plausible underlying justifications, and the bare analogy itself drives the argument forward. The second qualification concerns another limitation on Hurley's examples, resting on an ambiguity. Whether the amputation is foreseeable in the first case depends on how it is described. In general terms, it is foreseeable that if you injure someone, the individual will require medical attention, and sometimes will be injured as the result of consequent medical malpractice. But in the more specific terms of the case as described, such an outcome is unforeseeable. If you only cause "bumps and bruises" (presumably minor injuries), it is unforeseeable that when he seeks medical attention his leg will be amputated in an instance of gross medical malpractice. Foreseeability then, depends on exactly how the case is described, at a given level of abstraction. This so-called problem of intensional contexts will come up again later in discussing matters of circumstantial evidence.

To conclude this chapter, several characteristics of legal argumentation need to be summarized. One is that legal argumentation does have an organized procedure to resolve conflicts of opinion in hard cases, namely the trial. Legal argumentation in the trial is based on two kinds of premises that could be called facts and rules. First, there are the presumed facts of the case, introduced into the trial mainly by witnesses who testify as to these facts, and are examined about them. Second, there are the laws or legal rules, derived from statutes and

from rulings made in the courts. The trial also has several other components studied in this chapter, like rules of evidence and rules setting burden of proof, that make it work as an effective method of dispute resolution. In several important respects then, legal argumentation is markedly different from everyday conversational argumentation. But then, as will be shown in detail in Chapter 2, the arguments used in the trial are the same kinds of familiar arguments we use every day outside the courts, like argument from analogy and appeal to expert opinion. This familiarity of the arguments used is a necessary feature of any legal system employing juries to decide cases.

2

FORMS OF ARGUMENT COMMONLY USED IN LAW

In this chapter, an introduction to several highly significant types of arguments used in law is presented, with examples of such arguments given. With respect to each type of argument, an account of the form of the argument is given, indicating the premises and the conclusion. No attempt is made to evaluate any of the arguments yet, except to note that many of them have, in past traditions of logic, been treated as fallacious. What becomes evident, however, is that such arguments, when used in the legal context, are generally not fallacious. They are defeasible and inconclusive arguments, for the most part, and although they can be used fallaciously in

some cases, they are generally reasonable arguments that carry some weight as items of evidence in a legal context of use. In many cases, they need to present only a small amount of evidence, which needs to be evaluated in light of the larger body of evidence in a given case. A lot of legal argumentation tends to have a cumulative effect as evidence, meaning that many single arguments bring forward bits of evidence that interlock with other arguments that, in turn, bring forward other bits of evidence. No single item of evidence may be all that strong by itself. But the whole mass of evidence may be quite strong when all the combined arguments are taken together.

Each of these types of argument has a recognizable form, and many of these forms were identified by Chaim Perelman and Lucie Olbrechts-Tyteca (1969). But these forms do not generally represent kinds of arguments that are either deductively valid or inductively strong. In fact, they all seem to fall into the third category of arguments, those having some presumptive weight or plausibility relative to a body of evidence in a case. In logic, there is, so far, little agreement on what to call this third category. There is even little agreement on whether it represents a single class. But such arguments do seem to fall into a group, and there is a growing literature in argumentation theory studying these forms of argument, called argumentation schemes. Many different argumentation schemes have been analyzed (Hastings 1962; Kienpointner 1992; Walton 1996b). Many arguments can be categorized as presumptive argumentation schemes (1996a). Included below are those that are especially prominent in legal reasoning.

1. ARGUMENT FROM ANALOGY

Argument from analogy is very common in law, especially in the Anglo-American common law, where the argumentation is so often based on precedent cases, as was shown in Chapter 1. If you can find a previous case that is very similar to the case now at trial, and the decision in the previous case is on the side you are now advocating, your citing of this previous case is likely to be a strong kind of evidence in your favor. Argument from analogy of this kind rests on a similarity between the two cases. Of course, any two cases will be similar in some respects and dissimilar in others. But the key is to find a case that is similar in certain important respects to the one now at issue, even though the two cases might be quite dissimilar in other respects. As shown in Chapter 1, quite often one special characteristic or rationale common to two cases like foreseeability may be vital to the argument from analogy. Thus one important

respect in which two cases are similar may drive an argument from analogy forward as a key argument within a network of other arguments in a case.

Analyses of argument from analogy break the evaluation of the argument down into an evaluation of the individual characteristics, citing specific points of similarity or dissimilarity between the two cases. The more common, similar characteristics are found the stronger the argument from analogy is, and the more dissimilarities are found the weaker the argument from analogy is. This hypothesis is correct, other things being equal, but some similarities and dissimilarities can be much more important than others, depending on what the argument from analogy is supposed to prove.

Arguments from analogy have the following general form (Walton 1996b, 77):

MAJOR PREMISE: Generally, case C1 is similar to case C2.
MINOR PREMISE: Proposition *A* is true (false) in case C1.
CONCLUSION: Proposition *A* is true (false) in case C2.

In this account of the form of argument from analogy, what is important is that case C1 should be familiar to the audience so that they are strongly persuaded that *A* is true in that case. That is one key question in evaluating any argument from analogy. The other question is how similar the two cases appear to be.

For example, consider the following argument from analogy (78):

Case 2.1 As in prospecting for gold, a scientist may dig with skill, courage, energy, and intelligence just a few feet away from a rich vein—but always unsuccessfully. Consequently in scientific research the rewards for industry, perseverance, imagination, and intelligence are highly uncertain.

The argument in these cases is based on a comparison of two activities, scientific research and prospecting for gold. Those of us who are not scientists have a rough idea of how scientific research works, but we do not know *exactly* what it is like, although we probably have an expectation that it is highly methodical and exact. The analogy to gold prospecting is therefore highly revealing, because we know that the prospects of actually finding gold tend to be highly uncertain. You are very lucky if you hit gold, and we would expect that most prospectors would never hit any, or only small amounts, even though they may work hard and long. What the argument suggests to us is that scientific research is the same in this respect. You may work very hard, but still you may just

miss coming up with a really significant finding, despite work showing industry, perseverance, imagination, and intelligence.

What really makes this argument from analogy persuasive is the contextual match on an over-all basis of comparison between the two cases. Both cases postulate the same kind of situation. The prospector is working away, day after day, doing very hard work, and using all the imagination and intelligence he has at his disposal. But he works and works, and never comes up with a significant find. The situation of the scientists seems quite comparable. We picture her working away long hours in a lab, doing hard work that requires imagination and intelligence. It is the broad similarity of the two situations that makes the argument from analogy have impact, giving it force as the respondent transfers the one situation onto the other. Yes, just like the hard working, persistent prospector never hits gold, the scientists also labors away, and yet might never hit on a finding that yields up research grants, Nobel prizes, and all the other good outcomes that might flow from a significant scientific breakthrough. It's not the number of similar characteristics shared by the two cases that makes the argument from analogy persuasive, but how the cases fit together holistically so that we can graphically picture the first one, and then transfer it onto the similar situation of the second case. When you get a good comparison, the familiar picture presented by one case locks onto the less familiar but somewhat familiar picture presented by the other case. So what is said as true in the one case, appears to be quite plausible in the other case as well.

In Chapter 1, Section 10, using the case of the traffic accident resulting in an amputation of the wrong leg, it was shown how argument from analogy plays a central role in legal argumentation. This case also showed how it is the rationale, rule, or principle linking two cases that is the important factor in judging the outcome of a comparison between two similar cases. In this case, the principle of foreseeability was the principle linking three similar cases together, and revealing how one similar case can be used as a precedent for another. This case also shows how argument from analogy can be used either in a positive way (if the one case is similar to the other in a certain key respect) or a negative way (if the one case does not resemble the other case in this key respect). These two forms of argument have been well described by Eveline Feteris (1999, 8):

> When a judge uses an argument from analogy, he decides that a particular rule *R* which is applicable to a situation *x* is also applicable to a situation *y*, because *y* resembles *x* in relevant respects. When using an *argumentum a contrario*, a judge argues the other way around. He claims that rule *R* is not applicable to situation *x*, because situation *x* does not resemble situation *y* for which rule *R* was intended.

In the example of the car accident, either one of the two other cases cited can be compared to the original case, showing how one side could use argument from analogy, while the other side could use an opposed *argumentum a contrario*.

For example, one side might argue by analogy that the case of Schaffer resembles the case of Lane (see Chap. 1, p. 30), who used gasoline to light his barbecue. The ground of the argument would be the premise that the chain of causation leading from the car accident to the amputation is similar to the chain of causation leading from the lighting of the barbecue to the burning down of the neighbor's house. Since Lane should have foreseen the outcome of his actions, then it can be argued that Schaffer should also be held accountable, because she (likewise) should have foreseen the ultimate consequences of her failure to maintain her brakes. The opposing side might argue that the two situations are different. It can be plausibly argued that, in the barbecue case, the outcome should have been more easily foreseen by any reasonable person. This situation could be contrasted with the situation in the Schaffer case, where the specific outcome of amputation of the wrong leg in a disastrous surgical mistake is not so reasonably foreseeable. In this *argumentum a contrario*, the failure of resemblance is argued as a basis for claiming that the principle of reasonable foreseeability is applicable to one situation but not the other. At any rate, this type of case shows how common and important argument from analogy, and its opposite, *argumentum a contrario*, are in legal argumentation.

An illustrative case of use of argument from analogy in a trial has been presented by Neil MacCormick (1978, 161–63). In this case (*Steel v. Glasgow Iron and Steel Co. Ltd.* 1944 S.C. 237), a train had run loose down a gradient, due to the carelessness of some employees of the railway. The guard of another train was killed trying to prevent a collision between the two trains, even though he could have escaped if he had looked to his own safety. The widow of the guard sued for damages on grounds of negligence of the employees. The basis of her case was an analogy to another case, *Haynes v. Harwood*.[1]

In the *Haynes* case, a first person committed a wrongful act that put a second person into danger. A third person then rescued the second person but was hurt in the process. The rescuer then claimed for reparation for his injury from the first person. The basis of the comparison was that even though the rescuer acted freely, and could have avoided the danger, the first person (who had acted wrongfully) could still be held liable for the rescuer's injury. Similarly, in the train case, it was argued, even though the guard acted freely, and could have

1. *Haynes v. Harwood* 1935 1 K.B. 146. Cf. *Brandon v. Osborne Garrett & Co.* 1942 1 K.B. 548, and *Cutler v. United Dairies (London) Ltd.* 1933 2 K.B. 297.

avoided the danger, the employees who had acted wrongfully could still be held liable for the guard's death. The court decided that in the railroad case, just as in the previous rescuer case, a right to reparation for the acts of a wrongdoer is not negated by voluntary risk-taking. The comparison between saving life endangered by a wrongful act and saving property endangered by a wrongful act provided a strong enough argument from analogy to win the case.

Adversarial case-based reasoning of the kind used so often by pleaders in legal argumentation is based on the use of argument from analogy to justify a conclusion. This type of argumentation has been modeled by the software program HYPO, constructed by Kevin Ashley. Based on several criteria, HYPO chooses precedent cases that are useful for supporting the argument in a given legal case (Ashley 1990, 13). HYPO seeks out cases that make the same claim as the current case being advocated, and that are most analogous to the present case, in the sense that they share the same strengths and weaknesses. Retrieval systems are used to go through legal databases looking for such cases. HYPO is based on the same kind of adversarial reasoning that occurs in everyday examples.

Ashley illustrates this point using an example (1990, 196), where a twelve-year-old boy argues to his parents that he ought to be allowed to see the *Rocky Horror Picture Show* because his fifteen-year-old sister was allowed to see it. The parents, in turn, argue that she is more mature than he is, and that the movie is rated for teenagers. He is (almost) a teenager, he argues, and his friend Noah's parents let him see the movie, even though Noah is only twelve. This argument is typical kind of case-based reasoning in which similarities and differences between cases are cited as reasons to support or argue against claims. In such arguments from analogy, it is important to spell out why two cases are supposed to be relevantly similar or different. This kind of reasoning is highly typical of legal argumentation, as well as being very common in everyday argumentation outside legal contexts.

The movie case illustrates how an argument from analogy will pick on one particular characteristic or rationale shared by the two cases alleged to be similar, and then use that similarity as the thrust of the argument. It also shows how counterarguments from analogy often work. The parents and the child argue that some particular characteristic allegedly shared by the two cases leads by analogy to their opposed conclusions.

2. ARGUMENT FROM AN ESTABLISHED RULE

Setting rules and arguing about them is a common feature of daily life and is by no means restricted to legal argumentation. A situation familiar to all teach-

ers is one where an assignment and a deadline for the handing in of the completed assignment is given to students. At a university, for example, when an essay is assigned, a rule may be stated and agreed to which stipulates that any late essay will automatically receive a lowered grade. What will happen, of course, is that when the time comes around for the deadline, some other students will plead that an exception to the rule should be made in their case. Then the professor will be told a number of stories relating specific problems that particular students had. Some cases will be clear grounds for exemption, some will clearly not be, and others will fall into the gray area in the middle. In these cases, more questions will need to be asked of the student. In each case, a plea is put forward by the one side, and a judgment must be made by the other side. Most everyone in a position of supervision or authority in the workplace has to deal with these kinds of situations on a daily basis. The decision maker is put into the position of having to struggle with trying to arrive at some kind of fair and reasonable outcome in the form of a ruling that is fair, and can be justified as fair and reasonable.

How this kind of argumentation works is that, initially, there is some agreement reached, typically within an institutional framework, on putting some particular rule into place. So, for example, during the first week of a university course, a course outline is handed out, dates for assignments are announced, and then some rule about late assignments may be included. The students will then be asked to agree to these matters by the end of the first week, or to propose changes they think would be suitable. Once everyone agrees, the rule is set in place. But then, when the time comes for the essay assignment to be handed in, the following kind of case may arise.

Case 2.2 STUDENT: Would it be OK if I handed in my essay after the weekend?
PROFESSOR: Today is the deadline. That's the rule.

In this kind of case, the established rule puts presumption in place. If the student wants to hand in her essay later without penalty, she must give some reason for treating her case as an exception to the rule. So then the argument may go to the nest stage.

Case 2.3 STUDENT: I have another assignment due at the same time, and I can't do a good job on both unless I have more time.
PROFESSOR: Your planning and how many courses you take are up to you. I can't grant you an exemption for that reason.

If pressed further, the professor might argue that if he allows a late essay in this case, then soon other students would argue, "Well, you let her hand in her essay late for the same reason." This argument is a hard one to resist, because if the professor allows one late assignment but then doesn't allow another one, even though this student had the same excuse, he will be accused of favoritism and of being unfair.

In this case, what is appealed to is argument from precedent. The student argues that his case is analogous to that of the previous one, where the other student was allowed to hand her essay in late, for the same reason. The principle appealed to is one of justice or fairness, based on the premise that like cases should be treated alike. If the two cases are exactly comparable in overall similarity, the argument will be a hard one to resist.

So what has occurred in the sequence of cases cited above is that the agreement to the rule sets a presumption in place. The weight of presumption is on the side of meeting the requirements set in place by the rule. So if anyone argues that she should be allowed to hand an essay in late without penalty, she needs to give a reason to support this contention—a reason of sufficient weight that it will shift the presumption back to the other side. As Frederick Schauer has shown in his analysis of rule-based decision-making (1991), rules function as reasons that have a degree of weight in justifying actions. When a decision needs to be made, a rule sets up an inference that has some weight in making a decision. In this particular case, the decision will be made by the professor. But within the framework of the university as an institution, the student may appeal to the department chairman, the department marks committee, or even to the Dean. The argument based on a rule can be questioned, but the rule, once agreed to, sets a presumption in place. Subsequent arguments, of various kinds, can then offset that presumption, moving it to the one side or the other. And so it goes. A line has to be drawn somewhere, and consistency is required in sticking to the rule, even though, in some situations, flexibility in giving an exemption could be very good. Each case needs to be judged on an individual basis.

3. ARGUMENT FROM SIGN AND ABDUCTIVE ARGUMENT

In argument from sign, a particular finding is taken as evidence of the existence of some property or event, in a given case. For example, a person may see some tracks that she recognizes as being bear tracks. Seeing such tracks in a particular location, she concludes that a bear was present there not long ago. Argument from sign is highly contextual, and needs to be evaluated in light of other facts

known in a given case. For example, if tracks looking very much like bear tracks were found in a University of Winnipeg classroom, going along the ceiling, we would not be very much inclined to conclude that a bear passed there recently. What we would be more inclined to suspect is some kind of prank, where the imprints were produced by some device. But if comparable tracks were found on a trail in Jasper National Park, the conclusion that a bear passed along the trail would be plausible.

Argument from sign is very commonly used in medical reasoning. For example, if a patient has red spots all over, this finding may be taken as a sign of the measles. But a physician will arrive at a diagnosis by looking for the presence of other symptoms as well, and possibly for contra-indications, and may then subject the patient to testing, to confirm the diagnosis. The physician may also look for other signs, or conduct further tests, to determine what kind of measles is involved.

The general form of argument from sign combines two premises, one of which, the major premise, is a generalization. The other, the minor premise, cites a particular finding or fact that has been observed (supposedly) in a particular case.

MAJOR PREMISE: Generally, if this type of indicator is found in a given case, it means that such-and-such a type of event has occurred, or that the presence of such-and-such a property may be inferred.

MINOR PREMISE: This type of indicator has been found in this case.

CONCLUSION: Such-and-such type of event has occurred, or the presence of such-and-such a type of property may be inferred, in this case.

Argument from sign is often mediated through expert opinion as a basis of the argument. For example, someone who is a skilled tracker, or knows something about the different kinds of bear tracks, is in a better position to judge, in a given case, whether some impressions really are bear tracks or not. If the individual observing and interpreting the tracks is an expert, the plausibility of the conclusion drawn by argument from sign tends to be higher.

Generally, however, argument from sign is a kind of guesswork, and it should not be judged to be a conclusive kind of argumentation, all by itself. Typically, argument from sign provides a basis for making an assumption, so that this assumption can then be tested out by further investigation. It provides a way of initiating an investigation at the discovery stage, as a basis for carrying

it forward, where more conclusive kinds of testing can be brought to bear. Argument from sign is a highly empirical kind of inference that is based on observations made in a particular case, and on interpretations of what these observations may be taken to mean or suggest in that case. A legal example would be testimony of a police officer concerning the sobriety of a driver. In a typical case, the police officer might cite several signs that the driver was drunk: he saw the car weave, the driver was unsteady on his feet, he smelled of alcohol, he had watery or bloodshot eyes, and he had slurred speech (Davies 1993, 353). The evidence in this kind of case is typical use of argument from sign. Each single piece of evidence by itself is very weak, but as each sign is introduced, the evidence builds up in a cumulative effect. Once the police officer has finished testifying, it looks quite plausible that the driver was drunk.

The inference from the sign of the bear tracks, as outlined above, could also be classified as an abductive inference, because it proceeds from observed facts or appearances to a conclusion that explains those appearances. Abduction is defined as a kind of "backward" reasoning that starts from some observed facts and probes backward into the reasons or explanations for these facts. The term 'abduction' is from the Latin *ab* (from) and *duco* (lead). Abduction is widely recognized as a common kind of reasoning in computer science (Josephson and Josephson 1994). If you have a given knowledge base, and a conclusion drawn from that base, then by abduction you can look backward into that knowledge base, and try to determine the premises that the conclusion was derived from. But abduction has other uses as well. It is often associated with the kind of reasoning used in the construction of hypotheses in the discovery stage of scientific evidence. At the discovery stage of a scientific investigation, a given set of facts may suggest a hypothesis. The hypothesis cannot be proved yet, but it may be a good guess to assume provisionally, on the grounds that it is a best explanation of the given facts.

Abductive inference has often been equated with inference to the best explanation (Harman 1965). As a species of inference to the best explanation, abductive inference can be defined as having three stages. First, it begins from a set of premises that report observed findings or facts—the known evidence in a given case. Second, it searches around among various explanations that can be given for these facts. Third, it selects out the so-called best explanation for them, and draws a conclusion that the selected explanation is acceptable as a hypothesis. Abductive inference is defeasible, meaning that the conclusion is only a hypothesis that is subject to retraction if further investigation of the facts in the case shows that another of the alternative explanations is "better." In fact-finding in criminal cases, much of the legal evidence is abductive, and based on argument from sign.

In the argumentation scheme for abductive argument, the variable *F* stands for a given set of facts in a case. They are called "facts" because they are presumed to be true statements, and are not in question at the present. The variable *E* stands for an explanation. An explanation is a response offered to a particular type of question in a dialogue. One offered explanation can be judged to be better than another. Among a set of alternative explanation attempts, one can be selected out as the best. How good an explanation is depends on the type of dialogue the two parties are engaged in, on how far the dialogue has progressed, and on what was said in the dialogue before the explanation was offered.

Abductive Argumentation Scheme

F is a finding or given set of facts.
E is a satisfactory explanation of *F*.
No alternative explanation *E'* given so far is as satisfactory as *E*.
Therefore, *E* is plausible, as a hypothesis.

As the term 'hypothesis' in the conclusion indicates, abductive argument leads to a conclusion by presumptive inference in a dialogue. As the dialogue proceeds, the abductive conclusion may stay as a commitment, or further evidence may require that it be retracted. The abductive inference shifts a certain "weight" of acceptance to the acceptance of the conclusion. But that weight can be removed through the asking of appropriate critical questions. The following set of appropriate critical questions may be posed.

CQ1: How satisfactory is *E* itself as an explanation of *F*, apart from the alternative explanations available so far in the dialogue?
CQ2: How much better an explanation is *E* than the alternative explanations available so far in the dialogue?
CQ3: How far has the dialogue progressed? If the dialogue is an inquiry, how thorough has the search been in the investigation of the case?
CQ4: Would it be better to continue the dialogue further, instead of drawing a conclusion at this point?

Suppose that an abductive argument has some weight in supporting a conclusion. Then both parties in the dialogue should provisionally accept the conclusion, if they both accept the premises. But if the respondent asks any of the above four critical questions, the weight of acceptance supporting the conclusion is suspended. If the proponent can answer the questions adequately, the

weight supporting the conclusion is restored. The process of questioning and answering can go back and forth in a dialogue. But if all questions are answered, the argument stands. Typically, each abductive argument in a case needs to be evaluated in a body of evidence containing many other abductive arguments. The weight of plausibility of each argument needs to be evaluated within the larger body of evidence compiled as the dialogue in the case proceeds. When the dialogue in the case is completed, the mass of evidence on both sides can be weighed up. Each argument may only have a small weight of plausibility in relation to the ultimate *probandum* in the case. But it can be relevant because of its place in the whole network of evidence in the case. As in the case of the drunk-driving testimony above, abductive evidence, like that based on argument from sign, can increase in a cumulative buildup as evidence is compiled in a case.

Davies gives the following advice to a cross-examiner in court, on how to deal with the policeman's testimony in this kind of case (1993, 353–54): "If the cross-examiner takes each of these items separately, he should be able to obtain a concession from the officer that each one may be evidence of something other than insobriety." For example, a car may weave to avoid an accident even if the driver is not drunk. A person may be unsteady on his feet for reasons other than being drunk. A strong breath smell can often be explained by ingesting something other than alcohol. Lots of people have red or watery eyes, perhaps because they are elderly or have eyestrain from sitting in front of a computer screen all day. In each instance, an alternative explanation for the observed fact can be given. Individually, each alternative explanation is just as good as the explanation that the driver was drunk. The strategy of cross-examination advocated by Davies, therefore, is to break the story down into its component parts and attack each component separately.[2]

4. ARGUMENT FROM POSITION TO KNOW

One very common type of argument is used in a situation where one party lacks some information that she wants or needs to know about, and so she asks some other party who she thinks is in a position to know about the subject. A very simple kind of example would be that of a tourist who cannot find the Central Station on her map, and so she asks a shopkeeper, "Could you tell me where the Central Station is?" He points and says, "It's only one mile or so, just along

2. The notion that legal testimony should be seen as a "story," in which various pieces of evidence fit together into a larger mass of evidence, has been developed by Wagenaar, van Koppen, and Crombag (1993).

that street." In this case, the tourist assumes that the shopkeeper is familiar with the city, and would likely know where the Central Station is. She also presumes that the shopkeeper would be honest, and would only give her directions if he really knew where the Central Station is located.

The argument from position to know has the following general form:

MAJOR PREMISE: Source *a* is in a position to know about things in a certain subject domain *S* containing proposition *A*.
MINOR PREMISE: *a* asserts that *A* is true (false).
CONCLUSION: *A* is true (false).

In this case, the tourist does not have too much to lose if the directions turn out to be wrong. If she does not seem to getting near the Central Station, she can simply ask somebody else.

Argument from witness testimony is a special subtype of argument from position to know that is much used in legal argumentation. But in a trial, there can be a lot to lose if a witness lies, or gives inaccurate or misleading testimony. So in a trial, care is taken to minimize this possibility. First, the witness swears an oath to tell the truth. Second, there are penalties for lying. Perjury is a crime. Third, the witness can be cross-examined by the other side by a process of questioning in which the credibility of the witness may be tested and probed critically. This special subtype of position to know argumentation can be called argument from testimony. Its form is the same as that of argument from position to know except that in the minor premise, when the witness asserts the proposition in question, the mode of assertion takes a special form called testifying. Testifying is a special kind of speech act that can only take place when the witness goes on record as certifying that what she says is the truth of the matter. Such a speech act sets in place barriers against subsequent retraction. In other words, the witness can't turn around and say, "OH, I didn't really mean that, and I am now taking it back. So sorry!" Such a retraction would negatively impact on the credibility of the testifier. In court, a witness acknowledges this seriousness of what she testifies to by taking an oath.

Matching the argument from position to know are the following three critical questions.

CQ1: Is *a* in a position to know whether *A* is true (false)?
CQ2: Is *a* an honest (trustworthy, reliable) source?
CQ3: Did *a* assert that *A* is true (false)?

The argument from position to know is taken as a fallible kind of argument that has weight in shifting a burden of proof in a dialogue toward one side (the side of the proponent of the argument). The burden is then placed on the respondent to reply. But if one of the appropriate critical questions is posed by the respondent the weight shifts to his side and the burden shifts back to the other side. If the question is answered satisfactorily by the proponent, then once again the argument from position to know carries weight.

There are three parties involved in such an argument. The proponent is the one who puts the argument forward for some purpose in the dialogue, e.g., to persuade the respondent to accept the conclusion. The respondent is the designated recipient, the party in the dialogue to whom the argument was directed. The source is the third party, whose assertions support the argument put forward by the proponent. Argument from testimony has already been classified as a species of argument from position to know (Walton 1996b, 61). Use of witness testimony to draw conclusions in legal argumentation can be structured as a special kind of position to know argumentation. The conclusion is a proposition that makes some sort of claim, typically a factual claim. The premise supports this claim by citing the testimony of a witness, or someone who claims to be a witness to the event in questions. Bart Verheij presented an example of such an inference as representing a highly typical kind of legal evidence (2000, 6):

CONCLUSION: Peter shot George.
PREMISE: Witness *a* states that Peter shot George.

The additional premise that makes this argument plausible as evidence is the assumption that *a*, as a witness, is presumably in a position to know about whether Peter really shot George or not, while the rest of us (for example, the participants in a trial) are not. Thus *a* can testify to what he saw or heard, and for the rest of us, his testimony is evidence.

CQ1 was used to critically question testimony in the 1858 Almanac Trial, in which Abraham Lincoln cross-examined a witness who had claimed to have seen a murder (Younger, Goldsmith, and Sonenshein 1997, 13–14). Lincoln asked the witness if he had seen the fight during which the murder allegedly occurred. The witness answered that he had seen the murder occur in a wooded field under a full moon, which was high in the sky. But through subsequent questioning Lincoln proved that the actual conditions for visibility that night had been extremely poor by exhibiting an almanac that showed the moon had offered little light that night (Hill 1906, 233). It became evident from the questioning that, given such poor conditions, it was extremely unlikely that the

witness could have seen what he claimed to have seen. The accused was acquitted.

One thing that is especially important to emphasize about the logical form of argument from position to know, as indicated by the second critical question, is that it is based on the assumption that the source is trustworthy. The source is seen as a person, or at least as a party, who can take part in dialogue exchanges, and who has the quality of character of being honest or trustworthy in the giving of reliable information. The evaluation of any instance of the use of argument from position to know depends crucially on this assumption. How the logic of evaluating such an argument works is that the source is assigned a degree or weight of credibility, which can be moved upward or downward, as new information about certain characteristics of the source come to be known. For example, if the source is known to be an expert in the domain of the query, her credibility will be upgraded. And consequently, the plausibility value of the argument from position to know will be increased (given more weight as an acceptable argument). If the source is shown to have lied in the past, her credibility will be downgraded, and the plausibility of the argument from position to know based on her say-so will be decreased (given less weight). This method of evaluation of such arguments can be summed up as follows. The evaluation is essentially dependent on the credibility of the source. If the source is credible, the argument will be plausible (other things being equal). If the source is not credible, the argument will not be plausible. The plausibility of the argument will vary as a function of the credibility of the source. Such an argument may be described as source-dependent.

The argument from witness testimony above to the conclusion that Peter shot George can challenged, or even defeated as evidence on grounds of the reliability of the witness. Any evidence suggesting that the witness was mistaken, or was lying, would undercut the argument. Such new evidence defeats the argument by expanding it. The expanded version of the argument includes a new premise, added to the old premise. New information has come into the case, weakening the support for the conclusion offered by the old premise (by itself).

CONCLUSION: Peter shot George.
PREMISE: Witness *a* states that Peter shot George.
NEW PREMISE: Witness *a* is unreliable.

Bart Verheij (2000, 5) calls this more complex kind argument from witness testimony "dialectical," meaning that it contains two opposed sides. It has sup-

porting reasons for the conclusion, but then it also contains attacking reasons that undercut this initial support.

Argument from testimony is a special subtype of argument from position to know in which the source testifies before some tribunal, such as a court, in which the person testifying states (or even swears, on oath) that what she asserts is true. Of course, normally, in argument from position to know, as outlined above, there is a presumption that the source is collaborating by giving a truthful account of the information requested. But in argument from testimony, this presumption is brought more to the forefront, and the testifier actually goes on record, making a public commitment that she is telling the truth, and thereby indicating that she is willing to stand by what she now says. The use of the term 'testimony' in this kind of argumentation implies stronger commitment to the truth of a statement made than would be typical of other non–witness-testimony instances of position to know argumentation. Argument from witness testimony is based on the additional assumption that the witness is making a special effort to honestly and accurately tell the truth as she knows it. Any evidence to the contrary will therefore strongly undercut the evidential worth of an argument from witness testimony. So, if during later questioning, she appears to contradict what she said before, the apparent contradiction will need to explained, or dealt with satisfactorily, or there may even be some penalty if there is evidence of lying. In law, it would be a case of perjury. The key characteristic of argument from testimony (as a species of argument from position to know) that is essential to it as a type of argumentation, is its dependence on the credibility of the source. It is this special characteristic that is the key to distinguishing between testimonial evidence and circumstantial evidence.

Another special subtype of position to know argumentation is the argument from expert opinion, sometimes called the appeal to expert opinion (Walton 1997). Argument from expert opinion has the following general form.

Argument from Expert Opinion

MAJOR PREMISE: Source *E* is an expert in subject domain *S* containing proposition *A*.
MINOR PREMISE: *E* asserts that proposition *A* is true (false).
CONCLUSION: *A* is true (false).

This form of argument is fallible, because experts can be, and frequently are, wrong. However, if the premises are plausible in a given case, and appear to be supported by good evidence in that case, then the argument from appeal to expert opinion brings forward some weight of presumption in favor of the acceptability of the conclusion.

We use argumentation based on expert opinion all the time, and would be lost without it. But it is a type of argumentation that has to be treated with special care, and it may need to be examined critically before rushing to accept it. For, as noted in Chapter 1, expert opinion testimony is often used in courts in cases where what the experts on one side say flatly contradicts what the experts on the other side say. Experts are fallible. Appeal to expert opinion, as a species of argument from position to know, brings forward a weight of presumption in dialogue. But it is subject to retraction depending on the asking of appropriate critical questions by a respondent. The following six basic critical questions for the appeal to expert opinion are cited in Walton 1997 (223):

1. *Expertise Question*: How credible is *E* as an expert source?
2. *Field Question*: Is *E* an expert in the field that *A* is in?
3. *Opinion Question*: What did *E* assert that implies *A*?
4. *Trustworthiness Question*: Is *E* personally reliable as a source?
5. *Consistency Question*: Is *A* consistent with what other experts assert?
6. *Backup Evidence Question*: Is *E*'s assertion based on evidence?

Question 1, concerning credibility, should be seen as different from question 4, concerning personal reliability (Waller 1988, 126; Walton 1997, 213–17). The trustworthiness question relates to the personal reliability or ethical character of a source. The expertise question relates to the competence, that is, the knowledge and good judgment skills of the expert. Both factors are important. For as Waller (1988, 126) notes, the testimony of a lying expert can be just as incorrect and misleading as the testimony of a sincere incompetent. Argument from expert opinion, as well as position to know argumentation generally, is based on the credibility of the proponent as a reliable source who has ethical character for honesty. In questioning both types of argument, critical questions addressed to the character of the proponent are, in principle, relevant.

Appeal to expert opinion as a form of argument raises the issue of authority in law. A careful distinction needs to be made between *de facto* authority and *de jure* authority. Expertise confers a de facto authority on an argument or pronouncement, because the expert is supposed to have knowledge of the facts in a special domain of expertise. De jure authority can be described as the authority to perform actions or make rulings based on a titular or administrative position or role (Walton 1997, 77). As Joseph Raz has shown (1979, 10), there have been many theories to explain de jure authority, but none has been very successful. Raz defines this kind of authority as a species of permission by which people can entrust judgment to another person or institution which will then be bound to exercise judgment (1990, 134).

5. ARGUMENT FROM VERBAL CLASSIFICATION

This type of argumentation is so common that we are scarcely aware of using it. But it can be very significant, especially in some cases when its nonexplicit nature conceals the need to prove, or critically question, a conclusion based on it. A common type of example would be the following case: "Ten percent is an excellent rate of return on a fixed-term investment, so this bond is a good investment." The inference can be made more explicit as follows.

CLASSIFICATORY PREMISE: Ten percent may be classified as an excellent rate of return on a fixed-term investment.
MAJOR PREMISE: Any fixed-term investment that has an excellent rate of return is a good investment
MINOR PREMISE: This bond (a fixed-term investment) has a ten percent rate of return.
CONCLUSION: This bond is a good investment.

The main problem with argument from verbal classification is that the classificatory premise is often treated as though there should be no burden of proof attached to it. Perhaps the assumption is that definitions or verbal usages are trivial or stipulative, and so propositions asserting them do not need to be proved. For whatever reasons, arguments based on verbal classification often sneak by, as thought there is no need to prove them by backing them up with evidence to support the premises that have been assumed.

Argument from verbal classification has the following general form:

MAJOR PREMISE: If some particular thing *a* can be classified as falling under verbal category *C*, then *a* has property *F* (in virtue of such a classification).
MINOR PREMISE: *a* can be classified as falling under verbal category *C*.
CONCLUSION: *a* has property *F*.

In some cases, where the major premise is stipulated by definition, the argument from a verbal classification can be deductively valid. In a deductively valid argument, it is logically impossible for the premises to be true and the conclusion false. The traditional example is the following inference: all men are mor-

tal; Socrates is a man; therefore Socrates is mortal. If both premises are true, then it necessarily follows that the conclusion is true. The reason why this must be so is that the first premise is an absolute generalization that admits of no exceptions. Even one instance of a nonmortal man defeats the generalization.

Most of the examples of legal arguments examined in this chapter are not deductively valid. Most of the arguments featured in this chapter are defeasible, and in a defeasible argument, even though the premises give a reason to accept the conclusion tentatively, the premises do not necessarily imply the conclusion. The structure of these arguments is based on the Toulmin model (Toulmin, 1958) in which the generalization is nonabsolute, but even so acts as a warrant to support the conclusion. The famous example used by Toulmin illustrates this kind of inference: a man born in Bermuda will generally be a British subject; Harry was born in Bermuda; therefore Harry is a British subject. The so-called warrant, the generalization that is the first premise, is not absolute. It can still be true, or tenable as a generalization, even though contrary instances are known to exist.

Despite the emphasis on nondeductive argumentation in this book, in fact deductive arguments can be very important in legal reasoning. Argument from verbal classification is a good case in point, because it can be a deductively valid form of argument, if there is no question about whether the facts fit the absolute generalization, as stipulated by definition of the legal term. MacCormick (1978) has presented a deductive theory of the justification of legal arguments. According to this theory, when the facts of a case fit the rule applicable to the case, the argumentation justifying the decision made in the case can be reconstructed as deductively valid. But MacCormack's theory also allows for cases where there is a problem of interpretation arising from the definition of a key term. In such cases, it is unclear whether or not a rule fits the given facts of a case, and it can be argued that the Toulmin model (Toulmin 1958) rather than the deductive model better represents the structure of the argument.

A common problem with arguments from verbal classification is that terms in natural language, and even in legal usage, are very often vague. In many cases, it may be simply unclear whether the individual thing *a* really falls under category *C* or not. For example, suppose it is said that Bob is rich. The term 'rich' is vague, meaning that there is no exact dollar cut-off point at which a person may definitely be said to be rich or not. Hence in evaluating and responding to arguments based on verbal classification, disputes about definitions can arise of a kind that are not possible to resolve cleanly by citing existing evidence. The argument can lead to a protracted verbal dispute that can be difficult to resolve. In these problematic kinds of cases, the Toulmin model

seems to fit the structure of the argumentation better than the deductive model. At least that will be the thesis of this book.

Another problematic aspect of argument from a verbal classification may be illustrated by the following case.

Case 2.4 Your argument is heresy.
Therefore your argument is wrong.

The problem with his kind of argumentation is that even though it may be difficult to define what 'heresy' is supposed to be, it sounds like something bad (as, of course, it is meant to be). And so if the argument in question can be classified under this heading, it makes the argument appear to be somehow wrong or bad. In modern usage, for example, someone's argument may be rejected on the ground that it is "racist" or "sexist." Such an attack is difficult to rebut, because the charge sounds so bad that it makes the accused person appear to be guilty of something. Not all arguments based on allegations of racism or sexism are wrong, of course. But unless these terms are carefully defined, it can be difficult or even impossible to decide by rational argument whether the alleged behavior in the case in point really merits this form of condemnation or not.

6. ARGUMENT FROM COMMITMENT

Argument from commitment is based on a premise that cites the presumed commitment of an arguer to some proposition, based on what she said or did in the past, or some comparable kind of evidence that committed her to the truth of that proposition. The implication drawn from this premise is that the arguer may be held to her commitment to that same proposition, when it comes up subsequently for consideration in the argument, or challenged to explain why she has changed her view of the matter. For example, suppose two people are arguing about abortion, and the arguer on the pro-choice side consistently denies that the fetus is a person who has human rights. But then suppose that when the issue of fetal alcohol syndrome comes in for discussion, this same person claims that the mother is violating the human rights of the baby in the womb. The pro-life arguer can then use argumentation from commitment to challenge the argumentation put forward by the pro-choice advocate, saying, "I though you argued before that the fetus is not a person with human rights, but what you are saying now appears to go against that position." In such a

case, an obligation is placed on the first arguer to clarify her position, or at least to somehow deal with the apparent contradiction.

There are various problems in evaluating specific cases where argument from commitment is the basis of an inference drawn from some record concerning what a person has said or done in the past. In some cases, disputes may arise about what the person allegedly did, or how it should be described. If the commitment is inferred from some document the person wrote in the past, disputes may arise about what specific statements in the document supposedly mean. Sentences in the document may be vague or ambiguous, or they may just not apply directly to the new situation that is the focus of the criticism. In still other cases, the proposition written in the document, *A*, may be clear and unambiguous, but the dispute may be whether it really implies the other proposition *B* that has been inferred from it. If *A* deductively implies *B*, then there might be little room to dispute commitment to *B*, given that there was clearly prior commitment to *A*, and there was no retraction of commitment to *A* during the interval. But suppose that the inference from *A* to *B* was drawn on the basis of one of the argument forms cited above, which only represents a plausible form of inference that is subject to default in some cases. There may be a dispute about whether *B* has to be a derived commitment that can be inferred from what was written previously in document, or whether *B* was not really intended as part of the meaning covered by what was written. Many legal disputes appear to be of this kind. The dispute turns on what the author of the document intended to say, or commit herself to. The evidence may be not entirely conclusive.

In some cases, the person who has carried out the act or has written the document in question is present to challenge the inference that has been drawn. Argument from commitment shifts a burden, or obligation, onto the party who has been criticized to clarify her commitments, and bring them into line. But if the party who was attacked by this argument adequately discharges such a burden, the argument can be nullified or defeated. However, if the response is not adequate, argument from commitment can be a powerful form of attack that undermines the credibility of the arguer who was attacked, especially if there is evidence that her commitments are inconsistent. The underlying assumption is that an arguer should be consistent in the commitments she has incurred over the course of a long sequence of argumentation in a dialogue exchange in a given case. But this requirement is not absolute. It can be perfectly rational for an arguer to change her mind, if new information comes in, or if in light of evidence that has emerged during the course of a lengthy argument, she has changed her position on the issue. Such a change of commitment could, in some cases, be a sign of intellectual growth, and of increased subtlety and

deeper understanding of the issue. But it should not be allowed in a purely random way. It may indicate a deeply inconsistent set of commitments. And the problem with an inconsistant set of commitments is that they can't all be true. Something has to give somewhere, and some sort of retraction may be necessary if an arguer's credibility, and commitment to the truth, is to be maintained.

Argument from commitment has the following general form:

MAJOR PREMISE: If arguer *a* has committed herself to proposition *A*, at some point in a dialogue, then it may be inferred that she is also committed to proposition *B*, should the question of whether *B* is true become an issue later in the dialogue.

MINOR PREMISE: Arguer *a* has committed herself to proposition *A* at some point in a dialogue.

CONCLUSION: At some later point in the dialogue, where the issue of *B* arises, arguer *a* may be said to be committed to proposition *B*.

The problem arises in a kind of case where *a* has committed herself to *A*, but then later questions *B*, implying that *B* is doubtful. Or even worse, *a* might deny *B*, by directly asserting that *B* is false. In such a case, argument from commitment can be brought to bear by the other party, by pointing out that since *a* is committed to *A*, she should stick to that commitment, unless she has changed it. This argument gives a choice on what to do next. But if she does not resolve the issue, the argument from commitment will make her side of the case look bad, and detract from the plausibility of her argumentation. For example, if a witness can be shown to have inconsistent commitments during cross-examination of her testimony, that detracts from her credibility as a witness.

Argument from commitment plays an especially important role in legal reasoning in problems of statutory interpretation, in cases where an inference needs to be drawn on what a ruling expressed in a written document can reasonably be taken to mean or imply. It has been indicated in Chapter 1 how determining what should be inferred as a commitment in a given case of a written legislative ruling is a far from trivial question. It typically does not solve the problem to mechanically derive the supposed commitment *B* by deductive inference from the written sentence taken to express the proposition *A*. In some cases, such a deductive inference may solve the problem. But in many of the most problematic and interesting cases, the so-called penumbra cases, a simple

deductive move will not resolve the issue. In many problems of statutory interpretation, hypotheses have to be constructed concerning the intent of the authors of the document (Easterbrook 1988). The conclusion is then drawn by plausible inference, taking the original document as a whole into account. Various passages in a document may need to considered and weighed, to see what they mean, and if they are consistent. Instead of being too literalistic, it may be much better to take the purpose of the document into account, if that is known, or has been clearly stated. In dialectical terms, the context of dialogue needs to be taken into account, as well as the form of inference used to draw the conclusion.

7. PRACTICAL REASONING

There is one particular kind of logical reasoning that is especially important in legal argumentation, called practical reasoning. It is the kind of reasoning used where a person in a particular situation is trying to decide what to do when choosing between the available alternatives. This type of reasoning was known to Aristotle, but was not emphasized in traditional logic. The Aristotelian notion of practical reasoning (*phronesis*, or practical wisdom), portrays the reasoner as an agent, an individual who has goals and who is presumed to have the capability of carrying out actions based on its perception of its given situation, and its goals. More generally, *practical reasoning* is a goal-directed, information-based, action-guiding species of reasoning that combines an agent's goals with possible alternative courses of action, in relation to the agent's information on its given circumstances (Clarke 1985; Bratman 1987; Walton 1990). Many legal theorists, including Joseph Raz (1978) and Robert Alexy (1989), have seen rule-based legal argumentation as a form of practical reasoning. Practical reasoning is said to be carried out by an *agent*, an entity that is capable of intelligent action on the basis of intake of information on its circumstances, and on the use of this information in guiding its actions (Walton 1990, 191). An agent has information incoming on the consequences of its actions, insofar as they can be seen to occur. The agent can then adjust its actions in line with what it has seen, and then modify its actions or goals in line with what it knows at any given point. Walton defines this capability of action and goal correction as feedback (144–58). Feedback also occurs in dialogue exchanges where two agents reason together for some purpose (see multi-agent reasoning, below). An agent can be aware of incoming speech acts of another agent with whom she is engaged in dialogue, and can modify her subsequent speech acts and commitments in accord with the dialogue's progress.

Practical reasoning is a chaining together by an agent of what are called practical inferences (Walton 1990). A practical inference has two characteristic types of premises. One postulates that the agent has a stated goal. The other premise cites an action that the agent could carry out to achieve the goal (Clarke 1985). According to the account given in Clarke, Bratman, and Walton, a practical inference has a special kind of structure. The letters *A*, *B*, *C*, . . . , stand for things brought about by agents, contingent propositions that can be made true by an agent, called "states of affairs." In the structure of inference (*PInf.*) below, the agent is referred to by the first-person pronouns "I," or "my."

(*PInf.*) *A* is my goal.
To bring about *A*, I need to bring about *B*.
Therefore I need to bring about *B*.

The 'need to' is intended to express a "practical ought," conveying the idea that the agent, if she is to be prudent, should bring about *B*. So here we are presuming that an agent can have certain qualities of character, like the quality of being prudent. But what does the property of having such qualities of character amount to in the structure of practical reasoning? And how could such qualities be included in the structure, as playing some role in how the practical inference is to be evaluated? These are questions leading to the consideration of multi-agent systems in the next section.

The form of inference (*PInf.*) models the structure of the necessary condition type of inference in practical reasoning. The sufficient condition inference has the same structure as (*PInf.*), except that the second premise cites a sufficient condition (Clarke 1985, 43–63). In dynamic practical reasoning, the necessary and sufficient schemata are combined in longer sequences that include links of both types of inference structures. Once a sequence of practical reasoning has been put forward by an agent taking part in a deliberation, a weight of presumption is put in place in the dialogue, making the conclusion plausible. By using appropriate critical questions to match the reasoning that was put forward, the other agent in the dialogue can raise doubts about the acceptability of the conclusion of the practical reasoning.

What are these critical questions? Corresponding to the inference form (*PInf.*), there are five:

CQ1: Are there alternative possible courses of action to *B*?
CQ2: Is *B* the best (or most acceptable) of the alternatives?
CQ3: Do I have goals other than *A* that ought to be considered?

CQ4: Is it possible to bring about *B* in the given situation?
CQ5: Does *B* have known bad consequences that ought to be taken into account?

As practical reasoning is used in a given case, the putting forward of an argument of the form (*PInf.*) shifts a weight of plausibility from the premises to the conclusion, indicating that the agent should provisionally go ahead with committing to *B*. Practical reasoning is defeasible and does not prove a proposition absolutely, ending the dialogue without the possibility of raising legitimate questions. Instead, a practical inference supports a conclusion as tentatively plausible, subject to further dialogue. Asking any one of the above five critical questions can shift the weight of presumption back onto the original agent. Once the question has been answered, however, the weight of plausibility in favor of the original conclusion is restored.

One of the most prominent and important applications of practical reasoning to the analysis and evaluation of legal argumentation is to cases of judgment of intent. Problems of judgment of intent arise not only in criminal cases, where they are obviously of central importance to the determination of guilt, but also to questions of statutory interpretation. Such problems arise in cases where the wording or legislative history of a document may be unclear enough to leave open questions on how to interpret what the document means to say on a given issue. What tends to happen when the Supreme Court is faced with this kind of problem is that they use additional criteria (Easterbrook 1988, 59). They either go by what they take to be the values underlying the statute, or they ask a hypothetical question: What would the legislature that passed this bill have done if this present issue has been before it explicitly? The decision procedure in such a case takes the form of a dialogue, based on assumptions about what the goals and values of the legislators presumably were, when they wrote and passed the legislation. What is the structure of the evidence used in such a dialogue? One important element of that structure is practical reasoning. The decision procedure works by looking at the actions taken by the legislators as a group, judged by how they ruled and what they wrote, and then trying to reconstruct what their intentions presumably were. Of course, they may have stated their intentions. And if they did, these passages in the original document are relevant evidence. But the new issue on which the statute was interpreted may not be covered by any specific wording in the document. The problem then is to try to put the presumed goals and actions of the drafters into some logically coherent whole. In a nutshell, what needs to be done is to express the problem as one of reconstructing the chain of practical reasoning that can reasonably be attributed to the authors of the document.

Using Supreme Court cases as examples, William Eskridge and Philip Frickey (1990) propose practical reasoning, of the kind based on Aristotle's notion of *phronesis* or practical wisdom, as a model of the reasoning by courts when they interpret statutes in concrete cases. Their practical reasoning model begins with the assumption that the statutory text itself is the most authoritative criterion (354), taking the "plain meaning," current values, and the historical background of the text into account. According to the practical reasoning model, the Supreme Court should be seen as facing a particular problem, and as arriving at a ruling as a means of taking action to deal with or solve the problem. Therefore, in trying to draw inferences in relation to a new problem not explicitly covered by that ruling, but related to it, one needs to assess the whole structure of the practical reasoning used by the Supreme Court in acting to solve the prior problem. The method of argumentation used is a process of trying to determine the commitments of the Supreme Court by the given evidence of the document showing how they ruled in a previous case, and applying that practical reasoning to the new problem. Here the importance of practical reasoning in legal argumentation is shown.

8. ARGUMENT FROM PERSONAL ATTACK (*AD HOMINEM* ARGUMENT)

Argument from personal attack is a very common and sometimes extremely powerful type of argument that is used to attack some person's argument by arguing that the person herself is ethically a bad person. This type of attack focuses on the person's character. Very often it focuses on the person's character for veracity, taking the form, "He is a liar, so don't accept his argument as plausible." But it can focus on other personal characteristics as well as veracity. In general, it can comprise any kind of allegation that the person attacked is ethically deficient.

The personal attack type of argument is most powerful, and also most appropriate, when the argument that was put forward by the person in question is of a kind such that it depends for its acceptability on the credibility of the person as a source. It is for this reason that *ad hominem* arguments are so common, and so powerful in many cases, in legal argumentation in trials. For such argumentation very commonly depends on the credibility of a witness who is bringing forward testimonial evidence that is relevant to a disputed claim. Many legal cases are fought out purely on the basis of witness testimony, because there is little or no circumstantial evidence available or relevant. For example, in a sex-

ual harassment case, there might be no witnesses other than the defendant and the plaintiff themselves, so it is "his word against hers." In such a case, the only relevant evidence may be the credibility of the two principals in the case. But in many legal cases generally, credibility of the witnesses may be crucial evidence that swings the trier to the one side or the other, in deciding the case.

Although the personal attack or *ad hominem* type of argument has long been held to be fallacious in logic, the study of legal argumentation makes it abundantly clear that such arguments are by no mean always fallacious. In many legal cases, they can be quite reasonable, and in fact they can provide the most important kind of evidence that is required to rationally assess the argumentation used in the case.

The general form of the a*d hominem* argument has to be situated in a context of dialogue in which there are (typically) three participants—a proponent, a respondent, and a trier, or audience. The context is such that the respondent has already put forward an argument, and the proponent is then attacking that argument to try to persuade the trier not to accept the argument as plausible. The means used is to attack the person of the respondent, using the following form of argument.

MAJOR PREMISE: If the respondent is not credible, then his argument should not be judged to be (very) plausible.
MINOR PREMISE: The respondent is a bad person (ethically speaking), and therefore he is not credible.
CONCLUSION: The respondent's argument should not be judged to be (very) plausible.

This form of argument is based on what is called a credibility function, which takes as its input value the credibility of an arguer (source) and takes as its output value the plausibility of that arguer's argument. As the input value is lowered or raised, the output value varies accordingly. So if an arguer is persuasively attacked as a bad person, in a case where the plausibility of his argument depends on his personal credibility as an advocate of that argument, the plausibility of the argument should be given reduced weight. That is, less weight can be rested on it as reliable evidence.

There are various important subtypes of *ad hominem* argument, and informal logic is currently in the process of classifying and studying these subtypes. The most important is the circumstantial type of *ad hominem* argument, which takes as its premise the allegation, "You don't practice what you preach." The circumstantial type of *ad hominem* argument always rests on a premise that alleges

a contradiction. The classic case is that of a parent who tells her small child that he should not take up smoking, because smoking is bad for your health. The tot retorts, "But what about you, mom? You smoke," implying that his mother's argument is hard to believe, or to take at face value, in light of what he sees. A child may not understand statistics about how smoking is related to lung disease and cancer, but he is fully tuned in to following the example set by his parents. So from his viewpoint, this kind of argument is very powerful.

Evaluating this case is tricky, because the mother may present all kinds of very good evidence for the conclusion that smoking is bad for health. There is a danger of throwing this good part of the argument out, once the apparent contradiction has been cited. On the other hand, the child has a point. If the mother thinks smoking is so bad, why is she doing it herself (if she is)? Surely not practicing what you preach is some kind of evidence of a lack of credibility that does seem to be relevant (from the child's viewpoint). These arguments are tricky, and there are generally two sides to them. Even so, they can be extremely powerful in some cases, in swinging the outcome of a case one way or the other, where the total body of evidence is evenly distributed on both sides.

The circumstantial argument against the person has the following general form, based on an alleged conflict of commitments of the respondent. Typically, but not in all cases, the conflict is between some proposition the respondent has asserted or advocated, and some action attributed to her, that indicates her personal commitment, as revealed by the action, is in conflict with the proposition she asserted. The action is observed (supposedly) by the proponent, and then the proponent draws an inference from the observation of this action, implying something about what the proponent may be taken to be committed to, on this basis. Circumstantial *ad hominem* arguments tend to be complex, and involve a number of factors, but the account of the form of the circumstantial *ad hominem* type of argument presented below is meant to simplify its basic structure as an inference.

MAJOR PREMISE: Anyone who asserts proposition *A*, but then reveals that she is not personally committed to *A* (or is even committed to the opposite of *A*), is ethically a bad person and not a credible arguer, and her argument should not be judged to be plausible.

MINOR PREMISE: This person asserted proposition *A*, but she then revealed that she was not personally com-

mitted to *A* (or that she was committed to the opposite of *A*).

CONCLUSION: This person is ethically a bad person and not a credible arguer, and her argument should not be judged to be plausible.

This form of argument is based on the operation of the credibility function. When used persuasively, it provides evidence that leads to a reduction of credibility of the person who is attacked, and then that reduction of credibility leads to a reduction in the weight of plausibility assigned to the proposition that this person advocated as the conclusion of her prior argument. The difference between the direct, or so-called abusive, type of *ad hominem* argument and the circumstantial subtype is that the circumstantial requires the allegation of a contradiction as the basis of the personal attack, whereas the direct type does not. It directly attacks the arguer as a bad person, without using an alleged inconsistency as the basis of the attack. Notice also that not all allegations of inconsistency are *ad hominem* arguments. The allegation of inconsistency has to be used to imply that the arguer is a bad person, and that therefore his argument is not plausible.

The third basic type of *ad hominem* argument is the bias subtype. What is alleged in this type of ad hominem attack is that the respondent is biased to one side or the other on the question at issue, and therefore should not be given much credibility as a person who can be relied on to tell us what he really thinks about the issue. The bias *ad hominem* argument has the following general form.

MAJOR PREMISE: If a person is biased, he cannot be trusted to tell us what he really thinks about an issue he is questioned about.

MINOR PREMISE: This person is biased.

CONCLUSION: This person cannot be trusted to tell us what he really thinks about this issue he has been questioned about.

This form of argument, like the other types of *ad hominem* argument, works through the credibility function. For example, suppose an expert psychiatric witness is being questioned in court, in a murder trial, and tells us that, in his opinion, the defendant was insane at the time of the alleged crime.

But suppose that, on cross-examination, the witness admits that he has been paid, as an expert witness, to testify in this and many other cases, that a defendant was insane. He also admits under questioning that in two thousand previ-

ous cases he has found the defendant insane in every single case. He also admits that he makes his living as an expert witness giving this kind of testimony. Not surprisingly, the jury may conclude that this witness is biased, and they may not find him nearly as credible a witness as they would if they had no reason to think he was biased toward one side in the case. In such a case, the jury would not find the opinion advocated by the witness very plausible. They would reason that since the witness himself is biased, what he tells us should be reduced in plausibility from the plausibility that would normally be assigned to such an opinion, if there were no evidence that the expert was biased. In this case, argument from expert opinion is combined with the *ad hominem* bias subtype of argument. One is used against the other. This kind of situation is quite common in legal argumentation, in cases where an expert witness is examined in court, and impeached by the cross-examining attorney, on grounds of bias.

Notice that not any personal attack is an *ad hominem* argument. It must be a personal attack used to run down the argument of the person who was attacked. So if I say to you, "Bob is a liar," I have not necessarily made an *ad hominem* argument against Bob. Only if Bob put forward an argument at some prior point in a discussion, and then I used the personal allegation to attack Bob's argument, would the allegation properly constitute an *ad hominem* argument. Otherwise it is just a personal slur, or "personal attack" in some sense other than the sense meant in logic.

The *ad hominem* or personal attack type of argument is inherently negative in nature. But there also exist arguments based on the good character of an arguer. Aristotle called this type of argument ethotic, meaning that it is based on the character of the arguer. He noted that if a speaker is known to have a good reputation, in the sense that he is taken to be a person of good character, this perception will greatly enhance the plausibility of arguments he advocates, particularly in the case of ethical and political arguments that relate to public policy. In the *Rhetoric* and the *Nicomachean Ethics*, Aristotle remarked that enhanced persuasion can be achieved by a speaker's perceived character, based on his reputation, because the good person's speech is more credible (Brinton 1986). But of course, such ethotic argumentation can cut two ways. Good character generally enhances credibility while bad character generally detracts from it. So ethotic argumentation can be positive or negative. But it is only the negative species that should properly be called *ad hominem* or personal attack argumentation.

9. THE SLIPPERY SLOPE ARGUMENT

The slippery slope argument is a special subtype of argument from consequences in which the bad outcome is predicted to occur because of a slope

effect. The slope effect occurs when someone takes a first step that makes it possible or easier to take a second step, and so forth, until, at some indefinable point, it is no longer possible to turn back, and one is speeding down the slope to some horrible consequences (the disastrous outcome) waiting at the bottom. One of the most famous examples is the argument against the decriminalization of marijuana. This argument postulated a series of stages.

Case 2.5 Once marijuana is made legal, it will come into common use. Then there will be a climate of acceptance for it, and its sale will even become controlled by the government. Once many people start using marijuana on a regular basis, they will become addicted. The people will get used to taking drugs, and many will start using stronger drugs, like heroin. The general climate of acceptance for drugs, will not only result in many more people using harder drugs, but in enforcement problems in discouraging the widespread sale and use of hard drugs of many kinds. The final result will be a massive trade in hard drugs controlled by criminals, and a huge population of users who are addicted to drugs, with the accompanying social problems. In the end, we will have a stoned out society in which nobody does productive work, and all are supported by government social work clinics that supply them with drugs, until, in the end, the whole civilization collapses.

Another familiar kind of example is the following kind of argument against the legalization of euthanasia.

Case 2.6 Once any form of physician-assisted killing, or assisting a terminally ill patient to die, is allowed by law, it will be the first step, despite the best safeguards, to terrible wrongs. Once it is agreed that a life can be terminated because it is no longer worth living, it will lead to a relaxing of standards against the taking of human life. Once exceptions are allowed to the rule against assisting in taking a human life, then all kinds of justifications will be found for terminating the lives of individuals who are seen as too old or deformed to have a good quality of life. Once some person is given the authority to take part in the killing of an innocent person, directly or indirectly, there is no stopping the expansion of the process to include those persons thought to be a burden on others. Eventually,

> nobody would be spared except those who fit a certain ideal of perfect humanity. We already know that in the Nazi period, voluntary euthanasia began as a medical program with humane intentions, but was then gradually expanded to involuntary euthanasia on those deemed useless to society. Ultimately, it was this program of euthanasia that led to the Holocaust.

The idea behind these arguments is not just that bad consequences will occur. Once a first step has been taken, it will lead to a progression and a series of repeating, connected events that will propel a series of events faster and faster so that, at some point, there will be no turning back. Once the series has been initiated, there is no stopping it, and eventually then, it will lead to some disastrous outcome at the end. With the slope argument, there is always this repeating or sequential idea such that, once the series of events gets going, there is escalation to the point where there is no stopping. Another characteristic is that this point is not well defined. Instead, it is a grey area. On the whole then, the slope is insidious. Once you start, you keep going, but then you get to this undefined point which is such that, once you are there or past it, there is no turning back.

The analogy of the slope is a good one for this type of argument. First you get to the edge. Then you take a small step toward the slope. You could still go back, but now you have started moving, so it is harder to try to turn back. But then gradually, you are moving faster and faster and the gradient of the slope is steeper and steeper, so that, once you are underway, you couldn't go back even if you wanted to. Then you are going faster and faster, out of control, and of course ultimately, you will come crashing down at the bottom and the whole thing will end in disaster.

There are different varieties of the slippery slope argument. The two cases above are full, or all-in, types of slippery slope argument, so called because they combine several components that can also occur individually in some cases. One of these ideas is that of precedent. For example, a student might argue that his essay should be accepted, even though it is past the deadline, on the grounds that he did not have enough time to complete it. The instructor might reply, using the precedent type of slippery slope argument: "If I allowed that, every student could use the same excuse, and the whole system would break down." In this case, his reply could be a reasonable type of slippery slope argument, for it could be true that if he did allow such an excuse, nobody would bother to take the deadline seriously any more.

Another component is the difficulty of drawing the line. In the ancient so-

called heap argument of Eubulides, we are asked to imagine a pile of sand on a table, and someone is taking away one grain of sand at a time. At what point does the heap cease to become a heap? There is no answer to this question, indicating that the term 'heap' is not defined in relation to any exact number of grains. This problem of the lack of exact definition of terms used in everyday argumentation is a source of many disputes. For example, in the abortion dispute, there seems to be no nonarbitrary or noncontestable exact point at which it can be said that a fetus has become a baby. Legally, the point of personhood is the moment of birth, but many would argue that this definition is arbitrary and that good reasons can be given to argue against it as the only acceptable criterion. With many slippery slope arguments, verbal questions of how to define a vague term are part of the problem that makes the grey area impossible to define exactly.

One interesting case outlined in Walton (1992b, 268–77), the case of *Texas v. Johnson*, concerned the burning of an American flag by Gregory Lee Johnson during a political demonstration in Dallas. The court ruled that the act came under the act of 'expressive conduct,' protected by the guarantee of free speech under the First Amendment. Part of the argument used by Justice William Brennan to support his ruling was that making prohibitions on which symbols could be used to communicate a message would be to "enter territory having no discernible or defensible boundaries." Justice Brennan went on to ask whether the government could prohibit the burning of state flags, or the presidential seal (270). This argument is a slippery slope, because Justice Brennan warned that such a series of bans could lead to a situation where political preference would be forced on citizens, in a way that is forbidden by the First Amendment.

Slippery slope arguments are used fairly often in legal argumentation, not only on issues of abortion, euthanasia, and free speech, but on a broad variety of other issues as well, like warrantless searches, and arguably inconsequential forms of support for state religion (Schauer 1985, 363). As Schauer shows, the problem starting a slippery slope argument is typically the question, "Where do you draw the line?" on a contentious issue involving a term that is vague. The disputes that result in such cases frequently turn on questions of definition in which one side may try to advocate a precise numerical criterion as a means of solving the problem, but where the other side argues that the proposed criterion is arbitrary. The kernel of the issue is typically a verbal dispute about how to define some key term or phrase.

10. OTHER IMPORTANT FORMS OF ARGUMENT

There are various types of arguments, other than the ones already treated above, that are especially significant for the study of legal argumentation. Some

of these types of arguments are associated with traditional logical fallacies, while others are well-known general aspects of argumentation in logic or kinds of arguments that are important to know about. First, it is important to be aware of the distinction made between deductive and inductive arguments. There is also a third type of argument that is extremely common in legal argumentation, and that needs to be appreciated as different in kind from either the deductive or inductive type. This third type of argument is sometimes called abductive or presumptive. As indicated above, there is little agreement in logic on how to define this third category. It is a kind of argument that supports a conclusion on a tentative basis, subject to retraction in the event that new, relevant evidence comes in to a case. It is sometimes called defeasible, meaning that it is subject to defeat in the face of new evidence that goes against it. Many legal arguments, of both the types mentioned above and below, fit into this third category.

Causal arguments of various sorts are very common in legal argumentation. For example, in a negligence suit, the harm to one party must have been caused by something the other party failed to do. Causal arguments of the kind used in legal cases are not inductive, but defeasible in nature, even though induction may be involved. What causality means has often been disputed and analyzed by philosophers, but there is no well established theory of causation that everyone subscribes to. In law, what it generally means to say that one event or action causes another is that the first event is a necessary condition that is one of a set of conditions that are sufficient for the occurrence of the second event. This test is called the Necessary Element of a Sufficient Set Test, or NESS Test (Wright 1985). But typically, the first event is singled out from all the other relevant conditions on the grounds that it is a voluntary action, or that it is an abnormal kind of condition in the given case (Hart and Honore 1962). There have been many controversies in tort law about how causation should be judged as a key factor in arriving at conclusions about liability for wrongful (tortious) conduct. Wright (1985) argues that causation can be determined in factual inquiry by the NESS Test in a form that can be used as evidence for conclusions about liability for wrongful conduct.

The *post hoc* fallacy has the following form: there is a positive correlation between one event and a second event, therefore the first event causes the second one. For example, suppose it is found that there is a statistical correlation between the population of storks in a certain area, and a large increase in the number of human births in that area. One might conclude that the storks are causing the baby boom, but of course that would be a post hoc argument. The apparent connection might just be a coincidence. On the other hand, a positive correlation is sometimes good (but defeasible) evidence of a causal connection between two events. So *post hoc* arguments are by no means always fallacious.

The most famous cases where *post hoc* argumentation is at the center of the issue are those where a manufacturer of some drug or commercial product has been alleged to be responsible for causing harm to people who bought and used the product and then something bad happened to them afterward. In such cases, it is contended that the product was the cause of the harm.

Another traditional fallacy that is significant here is the *ad baculum* argument, or appeal to fear or threats to try to get acceptance of a claim. Use of threats is normal, and can be quite often or generally reasonable in negotiations. But in certain kinds of contexts, the attempt to use a threat as an argument is fallacious. For example, it would be highly inappropriate for a defendant in a criminal trial to threaten witnesses if they testify against him. On the other hand, certain kinds of threats are allowed in trials. It is quite common, for example, for judges to threaten participants with penalties if they persist in violating court rules.

One area of concern in logic is certain kinds of questions, like "Have you stopped abusing your spouse?" In fact, the use of this kind of entrapment tactic of questioning has been called the fallacy of many questions, or sometimes the fallacy of complex question. It is not just the complex aspect of such a question that tends to be objectionable, but its loaded aspect as well. The problem is that no matter which direct answer the respondent gives, she concedes having engaged in the practice of spouse abuse at some time or other. The solution to this kind of problem with questions can be directed to either the questioner or the respondent. What the questioner needs to do is to break the big question down into several smaller questions, and then put them to the respondent in a reasonable sequence, where each question is appropriate in relation to the previous answer. In explaining proper strategies for cross-examination in court, John Nicholas Ianuzzi (1998, 99) advises breaking the spouse abuse type of question down into several smaller yes-no questions. This is good advice for the questioner, but what should the respondent do if confronted by spouse abuse type of question? What the respondent needs to do is to question the question, and its presuppositions, instead of giving a direct answer. It needs to be noted as well, that the spouse abuse question above is not always fallacious. Suppose that the defendant in a case had just admitted abusing his spouse. At that point, it would be legitimate and reasonable for the questioner to ask, "Have you stopped abusing your spouse?" Whether the asking of a complex question of this kind is fallacious or not in a given case depends on the context of the case, and on what questions and answers have been put forward in the prior sequence of argumentation.

Leading questions are defined by Marcus Stone as those stated in a form that suggest the answer (1995, 92). Leading questions are not always objection-

able in court, but they frequently are. Leading questions are permissible under cross-examination and with hostile witnesses. They have the disadvantage, according to Stone, that they seem to make the questioner (the lawyer) the source of the answer instead of the witness, thus ruining the persuasive impact of the testimony. Stone cites the following example (94):

Q: Did the accused come into the pub around 9 pm?
A: Yes, he did.

The effect of leading the witness in such a case, according to Stone can be avoided by using a sequence of questions each of which has a more open form, as follows.

Q: Did anyone come into the pub after you got there?
A: Yes, several people came in.
Q: Did you notice anyone in particular?
A: Yes, Mr. Butler, the defendant came in.
Q: About what time was that?
A: It was around 9 o'clock.
Q: Are you sure that it was Mr. Butler?
A: It certainly was. I know him very well.

This second sequence of questions is much more persuasive, for the purpose of the questioner, than the single loaded question asked in the previous dialogue. The technique needed is that of breaking a single leading question down into a sequence of smaller questions, each of which has its proper place in the sequence. The outcome is the same admission, but the persuasive impact of it is much greater.

Another broad area of logic that is of central concern in the analysis of legal reasoning is the family of problems arising from vagueness and ambiguity of language. Neither vagueness nor ambiguity are inherently wrong, from a logical point of view. But both can lead to logical problems in many cases. The fallacy of equivocation is said to occur where a term is used in one sense in one part of an argument, and then used in a different sense in another part of the argument, so that the conclusion seems to follow logically from the premises, whereas in reality, it does not. The fallacy of amphiboly is the same problematic kind of case, except that the ambiguity is grammatical (in the structure of a sentence) rather than semantic (in the meaning of a word or phrase).

In many cases, ambiguity is a problem because a key word or phrase in a legal document could arguably be interpreted in either one of two ways, and so

a ruling on what the document should instruct someone to do is subject to disputation. In the case of a will, for example, a key phrase may be ambiguous.

One way of trying to deal with the many problems that arise from vagueness and ambiguity of language in legal argumentation is to offer a definition of the term at issue. Popular opinion often takes argumentation about definitions of words to be trivial. And in fact, lawyers and philosophers have in common that they are both often criticized for arguing about definitions in a way that is seen as hair-splitting. But many legal cases make it abundantly clear how important definitions really are, and how much can turn on them. For example, billions of dollars can turn on how a term like 'wetland' is to be defined. In reality, arguing about definitions and the meanings of words is a big business that is vitally important. It is probably because of the great importance we place on empirical evidence, a heritage of the so-called Enlightenment ways of thinking in our culture, that we tend to denigrate the importance of arguments concerning definitions.

The importance of definitions, and the meanings of words and phrases generally in adversarial legal argumentation, was recognized as early as the first century B.C. in the *Ad Herrenium*, a treatise on rhetoric (ascribed to Cicero, in the edition cited). When one party destroyed a bridge, his adversary in court accuses him of "having impaired the sovereign majesty of the state," because he destroyed the bridge without informing the government first (*Ad Herrenium* II.xii, 17–18). In his defense, the accused party says that he has prevented rather than inflicted damage because he not only saved money but saved the state from harm. So you could look at the dispute by noting that both sides are trying to connect conduct with the meanings of terms like "having impaired the sovereign majesty of the state," and each side defines these contentious terms in a way that suits its own advantage in the dispute.

One of the main problems is that in a case concerning a disputed issue on which there are two sides, each side tends to use language that is supportive of its own viewpoint. In a territorial dispute between two countries, for example, the other side may be described using terms like "transgressors," "enemy," or even "terrorists," while our side is described using positive terms like "defenders" or "police." When such disputes become institutionalized, the very wording used by both sides to pose the issue may have a spin. The classic case is the abortion controversy, in which one side describes its stance as "pro-choice" while the other describes its stance as "pro-life," apparently giving both sides a positive spin. It would sound bad if the one side described itself as "pro-abortion," implying that they are for terminating the lives of the unborn. And it might sound even worse if the other side described itself as being against abortion, which may be taken to somehow imply that they are imposing restrictions

on someone's freedom to do what they want. So both sides choose terms to frame the dispute that highlight something that they can be described as being positively for, and that sounds good.

One problem with this constant tendency to try to put a positive spin on one's viewpoint is that participants in a dispute put forward a persuasive definition that has a spin to favor one's own side of a disputed issue. For example, the pro-life side may define an abortion as the killing of a baby, whereas the pro-choice side may define abortion as the exercise of a woman's freedom to remove an unwanted burden. This clash of definitions can lead to many problems. For one thing, if both sides use the term 'abortion' to mean different things, how can they ever resolve their disagreement about whether, or under what circumstances, abortion should be considered permissible or not? The answer is that they can't. The disagreement about definitions blocks progress on the ethical discussion about the rights and wrongs of abortion.

As shown in Chapter 1, much legal argumentation turns on the interpretations of words, phrases, and sentences used in statutes, contracts, and other legal documents. Verbal factors like clarity of language, problems arising from vagueness and ambiguity of language, and questions of how terms should properly be defined, are all matters of the upmost importance. They should not be dismissed as trivial, and they are almost always central to the resolution of legal disputes. They are also highly contextual in nature, for, as shown in Chapter 1, much may depend on the purpose of a statute, and on how words or phrases should be interpreted in relation to the specifics of a case. Here we have a vast and important area of legal logic that has been much neglected and underrated in the past. Perhaps it has been this way because language has seemed to be too subjective, and because of our Enlightenment presumption that verbal matters are trivial. Or perhaps it has been this way because we simply didn't seem to have resources in logic for dealing with factors of verbal connotations and suggestions. Now this attitude should change, and the implicatures of slanted language should be taken into account as an important aspect of legal argumentation.

In logic, an argument containing a nonexplicit premise is called an enthymeme. This term is historically a misnomer, but since it is now so widely established in logic, the improper usage is probably best left alone. An enthymeme, according to this usage, is an argument in which an unstated premise may be taken for granted. The classic example is the argument, 'All men are mortal, therefore Socrates is mortal.' This argument would be deductively valid if the nonexplicit premise 'Socrates is a man' is included. Since this proposition is part of common knowledge, and since (or if) it is not an issue in dispute in a given case, it can be assumed that it was meant to be one of the premises on

which the conclusion rests. It may be best not to complicate matters too much further, but it could be noted that in some cases, the conclusion could be the unstated part that makes an argument an enthymeme.

As stated above, much legal argumentation takes the form of gap-filling in interpreting argumentation in statutes and other legal documents. The task of interpreting a given text of discourse, reconstructing the text to fill in the implicit parts that need to be explicitly formulated as part of the argument, is a centrally important part of legal logic. Any conclusions drawn in a case need to be seen as depending on this verbal aspect of the argumentation. The whole area of definitions and fallacies arising from ambiguity needs to be rethought, and looked at from a pragmatic perspective of how language is used in a context of dialogue in a given case.

3

CIRCUMSTANTIAL EVIDENCE

Chapters 1 and 2 have shown how legal argumentation is shaped by rules of evidence. But what is evidence in law? And how does the notion of evidence in law relate to notions of evidence in scientific reasoning and everyday reasoning? In Chapter 6, a new theory of evidence will be presented that will help to answer these questions. But before getting to that point, it is necessary to explain some logical components necessary to express the theory. It is also necessary to deal with certain difficulties that lie in the way of any attempt to grapple with the concept of evidence.

One of the most intractable difficulties concerns the use of the term 'circumstantial evidence.' Both in legal discourse and in everyday conversational discourse, this term is used in a variety of conflicting ways. Sometimes it is contrasted with 'direct evidence,' sometimes with 'real evidence,' sometimes with 'testimonial

evidence,' and sometimes in a way that does not contrast clearly with any of these presumed opposites. The term 'circumstantial evidence' is often used in a misleading way that creates confusion. In some instances, it is even used in such a way that it is unclear whether there is any kind of evidence at all that is noncircumstantial. Before any sense can be made of the concept of evidence, either in legal discourse, or in everyday and scientific discourse outside the law, some attempt must be made to clarify the concept of circumstantial evidence. Chapter 3 is taken up with this problem. The chapter will tend to support John Wigmore's hypothesis that the concept of circumstantial evidence has no utility in law (1935, 40). But even so, it is vitally necessary to dispel some of the myths about the clarity and usefulness of the concept of circumstantial evidence before proceeding to an analysis of the concept of evidence that beginners to legal reasoning can understand and appreciate. For beginners (and many nonbeginners as well) have a natural tendency to try to solve logical problems of evidence by appealing to the notion of circumstantial evidence. This could perhaps be called the common sense approach to evidence.

The findings of Chapter 3 are not entirely negative, however. Chapter 3 will show that legal reasoning is better understood by basing it on plausibility concepts than on categories of deductive logic. Then the subsequent chapters can get on with the job of explaining more fully what is meant by plausibility, as applied to evidence. The common sense approach suggests five different criteria that can be applied to determine when the evidence in a case is circumstantial and when it is noncircumstantial. At least these criteria appear to be different from each other. The discussion in Chapter 3 is based on various attempts that have been made to defend these criteria by expressing them in an exact way. From the variety of criteria, the reader can infer how controversial the subject is. It will be argued that, in the end, all the criteria fail.

1. THE MCCORMICK CRITERION

An important distinction in legal evidence that is often alluded to in the use of scientific evidence, and other contexts as well, for example in historical scholarship, is that between circumstantial evidence and direct evidence. At first sight, this distinction seems to be of no direct legal significance because it is not part of the determination of whether evidence is legally relevant or not (Strong 1992, 777).[1] Christopher Mueller and Laird Kirkpatrick (1995, 250) state that

1. The "McCormick criterion" refers to Professor Charles T. McCormick (1889–1963), the original author of *McCormick on Evidence*. Cited here as Strong 1992, the book was re-edited by Strong as the 4th edition and is a much used book in law.

"there is no *legal* distinction between the two forms of proof" (direct and circumstantial evidence). And the Federal Rules of Evidence do not depend on the distinction. But as Lyman Patterson (1965b, 11–12) points out, "The idea that a witness can testify only to matters of his direct knowledge is probably the single most important idea in the common law system of evidence." And since "direct knowledge," as applied to witness testimony, is the same thing as, or directly depends on, the idea of direct evidence, the importance of the distinction between direct and circumstantial evidence is made clear.

Circumstantial evidence originally meant, according to Geoffrey Gilbert (1788, 5), evidence based on the facts and circumstances of a case, drawn by a jury's inference of a plausibilistic sort, based on "common experience of mankind": "Circumstantial evidence is proof of certain facts and circumstances in a certain case, from which the jury may infer other and connected facts, which usually and reasonably follow, according to the common experience of mankind." This account of circumstantial evidence will turn out to fit in with the plausibilistic theory of evidence offered in this book quite well. However, in more recent accounts of what the concept of circumstantial evidence means in law, a modern, technical logical definition has been given. It appears to be more precise, because it looks like it fits in with or can be modeled by deductive logic. According to the account in *McCormick On Evidence*, direct evidence is of a kind such that, if you assume the basis statement is acceptable, then the conclusion to be proved on that basis follows conclusively from that basis.

> Direct evidence is evidence that, if believed, resolves a matter in issue. Circumstantial evidence may also be testimonial, but even if the circumstances depicted are accepted as true, additional reasoning is required to reach the proposition to which it is directed. For example, a witness' testimony that he saw *a* stab *b* with a knife is direct evidence of whether *a* did indeed stab *b*. In contrast, testimony that *a* fled the scene of the stabbing would be circumstantial evidence of the stabbing (but direct evidence of the flight itself). (Strong 1992, 1:777)

This way of drawing the distinction appears to be quite precise, and the example is very helpful. But there are a number of questions about it that need to be raised. If a witness says he saw *a* stab *b* with a knife, and if that testimony is believed, does that resolve the issue that *a* stabbed *b* with a knife? The problem is, I believe, that one should say 'no,' because argument from witness testimony (a species of argument from position to know, as categorized in the classification of argumentation schemes in Chapter 2) should be treated as a presumptive type of argument that is not conclusive in nature. McCormick's added clause

"if believed" seems to make the argument from witness testimony conclusive, however. But should it? I would have to reply that it should not, on logical grounds. Argument from witness testimony is never really a conclusive type of argumentation, and should not be treated as such. Even if what the witness tells us is "believed," we should still have some reservations. The witness might be lying, or may simply be mistaken. The problem, however, is a general one for the logic of presumptive reasoning. The analysis of position to know argumentation in Chapter 1 indicates that this form of argumentation is not conclusive. Even if highly plausible, it has only a weight of presumption as evidence, and should be subject to critical questioning.

There are several technical points of logic involved in the distinction between direct and circumstantial evidence. (In what follows, we let italic capital letters stand for propositions, as contrasted to nonitalic capital letters, which, above, we used to stand for agents.) One logical question is what is meant by "believed." Another is whether a presumptive type of inference, like appeal to witness testimony, can ever conclusively prove a conclusion (beyond doubt). Two other main questions are—what does "directly" mean, and what does "conclusively" mean? The first term appears to mean that if a conclusion *B* is drawn from a basis statement *A* in the inference in question, then the inference is direct if *A* is equivalent to *B* in the sense that both are the same statement, or say the same thing. But exactly what sense of equivalence is meant here? For example, is the statement 'Alice killed Bob' the same as the statement 'Bob was killed by Alice,' or is it different enough that the two should not be regarded as equivalent? This kind of problem comes up in logic in relation to the problem of circular reasoning, relating to the fallacy of begging the question, where a circular argument is often defined as one where the conclusion is identical or equivalent to the conclusion to be proved, in a given case.

There are some problems with the word "conclusively" as well. In the McCormick account (Strong 1992, 777), evidence is conclusive if it "resolves a matter at issue." But when does evidence, or an argument, resolve a matter at issue? This criterion just raises more questions, because an issue can be resolved, presumably, without being conclusively resolved. So in logical terms, when should an argument be said to be conclusive? This word is often taken to be equivalent, in logic, or closely related to the concept of a deductively valid argument, where it is logically impossible for the premises to be true and the conclusion false. For example, if the premises are the two statements 'All men are mortal' and 'Socrates is a man,' then the conclusion 'Socrates is mortal' follows by deductive necessity. In other words, the inference is conclusive in the sense that it is logically impossible for both premises to be true and the conclusion false. However, the problem with the use of arguments based on

witness testimony is that such arguments are not generally deductively valid, or conclusive in nature. Instead, they are plausibilistic in nature, meaning that the conclusion follows only as a plausible presumption from the basis premises, because the inference depends on the reliability and trustworthiness of the witness. There is always the logical possibility that the witness could be lying, or may not have veridically seen what she reported as occurring. So inferences based on testimony are, in general, best seen logically as not being conclusive in nature. Quite the opposite, they are best seen as inherently fallible in nature, and subject to critical questioning and doubt, according to the account of their logic in Walton (1996b).

2. THE JEWISH CLASSICAL LAW CRITERION

Circumstantial evidence is typically taken as having less value than other kinds of evidence, perhaps because it is seen as being based on guesswork or conjecture, somehow. But why should it be seen this way? To get a grasp of this aspect of circumstantial evidence, and to appreciate why people think this way about it, an example from the Talmud cited by Rosenberg and Rosenberg (1995, 1378) is very helpful.

> *Case 3.1* He (the judge) says to them: Perhaps ye saw him running after his fellow into a ruin, ye pursued him, and found him sword in hand with blood dripping from it, whilst the murdered man was writhing (in agony) : If this is what ye saw, ye saw nothing.

This example is used in classical Jewish law to show why "omed" (literally meaning conjecture, estimate, or guess), or circumstantial evidence, is considered worthless in criminal cases tried in rabbinical courts. The requirement for something to be admissible as evidence in such a trial is that it must be "direct eyewitness testimony by two competent witnesses who saw the complete *actus reus*" (1378). Classical Jewish law then, has a much higher standard of admissibility for evidence than the Anglo-American common law. In the classical Jewish law, circumstantial evidence is not admissible. And even direct eyewitness testimony of a single witness would not be regarded as a sufficient basis for a conviction in a criminal case. The testimony of two witnesses, each of whom individually saw the whole of the crime being committed, is required by the Jewish law criterion of evidence. The Jewish law distinction between circumstantial and noncircumstantial evidence is also stricter than current ways of

making the distinction both inside and outside legal usage would permit. In current usage, it would be enough if the witness observes the stabbing, takes the victim to the hospital, and the hospital personnel observe the death. The chain of custody in such a case would ensure, by current usage, that what the witness saw was direct evidence. But even if the criterion is one that might be regarded as very strict, can it be sustained?

The example cited illustrates very clearly what is distinctive about circumstantial evidence, and why it is considered inferior. The case would be one of direct (noncircumstantial) evidence if the witness saw the action of stabbing itself, or what is called the complete *actus reus*. But if she only saw other things, like the pursuit into the ruin, the one party with sword in hand and blood dripping from it, and so forth, what was seen here was not the complete *actus reus*. All these other elements that were viewed are merely circumstantial evidence. The modern phrase we would use here would be "smoking gun," referring to the very strongest kind of circumstantial evidence case in which the alleged perpetrator was actually seen just after the event, holding a smoking gun pointed, presumably, at the body of the victim. Once again, the witness report of seeing the smoking gun would only be considered circumstantial evidence, because the whole act of the pulling of the trigger, the firing of the gun, the falling of the victim to the ground, and so forth, was not seen.

What is it, in reference to such cases, that is distinctive about circumstantial evidence? And what is it about this distinctive character of circumstantial evidence that leads us to consider it a lower grade of evidence, or somehow inferior to some other kind of evidence? The characteristic is that for something to be direct evidence—which we may, in reference to the case being discussed, take to be the opposite of circumstantial evidence—the whole act, the complete *actus reus*, must be observed. That is the criterion for distinguishing between direct and circumstantial evidence. If only part of the act was observed, but not the whole act, then the evidence is classified as circumstantial. But what is meant by "the whole act"? What this seems to refer to is what is called in philosophical action theory the act-description. The factual conclusion that would normally be at issue in this kind of case in a trial is whether the one party killed the other. The act, so-called, is one that should be described as a killing. What needs to be observed, for the case to be one of direct evidence, is the act of killing. And it must be the complete act of killing. Anything less than this falls under the category of circumstantial evidence. The victim must be seen to expire as a consequence of what the perpetrator did, and what the perpetrator did that resulted in this consequence must be fully observed.

We could put this criterion in a different way, as follows. We could say that in any case like the one above there will be a certain act-description corre-

sponding to what was observed by the witness in the case. For example, the witness may have seen the bloody sword held by the alleged killer, and the other things cited in the case from Jewish classical law. What she saw can be written down as a list of sentences, or what we would call in logic a conjunction (meaning a list where the order is not important) of propositions. Also, in such a case, there will be a certain act-description corresponding to the conclusion to be proved in the case. Let's say the conclusion to be proved, or at issue in the trial, is that the one party cited killed the other party cited. So here we have two propositions. The one describes the evidence, a set of actions or events, that was actually observed. The other describes some action that is at issue. The distinction between circumstantial and direct evidence turns on the nature of the inference from the one proposition to the other. If the one proposition is equivalent to the other, in the sense that it describes the same action, the evidence is direct. If the one proposition is not equivalent to the other, on the grounds that what is described in the one is incomplete, so that it does not qualify as a full act-description that is equivalent to the act-description of the other, then the evidence is circumstantial.

Now we come to the question of why circumstantial evidence should be considered to be somehow inferior to direct evidence. The reason evidently has to do with the logic of the inference from the one proposition to the other. In a case of circumstantial evidence, the premise, the description of what was observed by the witness, says less than what is said by the conclusion. The two propositions are not equivalent as act descriptions. Some aspects of the act present in the conclusion are missing, or were not observed, in the aspects of the act listed in the premise set. So in drawing the inference from the premise to the conclusion, a logical leap must be made. To make the inference valid, or absolutely conclusive, meaning that if the premise is true, there is no room to doubt the conclusion, an assumption or conjecture must be made to the effect that the other aspects of the action in the premise correspond to those in the conclusion. But in a case of circumstantial evidence, we do not know that. It is a conjecture only, based on an inference that is, in some sense, incomplete.

Now consider a case of direct evidence. Suppose the witness actually saw the perpetrator stab the victim with the sword, saw the victim gushing blood, saw the victim stagger and fall down, and so forth. Suppose, in other words that the witness saw the whole act of killing, the complete *actus reus*. In this kind of case, there is no need for a logical leap or conjecture of the kind required in circumstantial evidence. Instead, the act-description of the conclusion is included in the act-description in the premise. What this means, even more precisely, is that enough act-descriptions are included in what the witness saw so that nothing is missing in the act-descriptions reported in the conclusion to be

proved. There is an inclusion. So no logical leap is required. The information in the one act-description is included in the information contained in the other.

But suppose the witness saw the perpetrator stab the victim, saw the blood gush out, saw the victim stagger and fall down, and then examined the victim and found him to be dead. Can we now assert conclusively that the perpetrator killed the victim? The answer is negative. To prove conclusively, by purely deductive reasoning, that the perpetrator killed the victim, it has to be shown conclusively that the stabbing by the perpetrator was the cause of the victim's death. But causality, as noted in Chapter 2, Section 10, is always based on an inference from a given set of necessary and sufficient conditions in a case. The cause of an observed event is drawn by an abductive inference or inference to the best explanation from what are presumed to be the facts of a case. As the analysis of legal causation in tort law presented by Richard Wright indicated (1985), following the analysis of the philosopher David Hume, causation is never a necessary connection between two events. A causal hypothesis is always drawn by inference from what are presumed to be a known set of facts in a case. What follows is that the Jewish classical law criterion, if expressed as an analysis that uses deductive logic to define direct evidence, and distinguish it from circumstantial evidence, will never work. Genuine evidence, of the kind that is significant in the kind of case illustrated, will turn out to be circumstantial evidence. Not only is the criterion too strict, but if analyzed by deductive logic, it turns out to be so strict that direct evidence turns out to be trivial.

3. BENTHAM ON CIRCUMSTANTIAL EVIDENCE

Jeremy Bentham's criterion for distinguishing between direct and circumstantial evidence is somewhat similar to the Jewish classical law criterion, in that it makes the difference turn on the kind of inference drawn from the evidence to the conclusion to be proved by it (Bentham 1962). The distinction for Bentham is that, with circumstantial evidence, a special kind of inference is required, whereas, with direct evidence, the inference from the initial proposition to the conclusion drawn is of a more simple type. The best place to begin is William Twining's explanation of Bentham's account of the distinction (1985, 33). According to Twining, where a witness *W* makes a statement *A*, and the conclusion we draw is that *A* is true, then the case would be called one of direct evidence. Essentially then, the characteristic of direct evidence is that the proposition asserted is the same as, that is, is identical to or equivalent to, the conclusion that is drawn. With circumstantial evidence, the inferential aspect is

more complicated. In the case of circumstantial evidence, when the initial proposition *A* is asserted by the witness, the conclusion that is drawn is some proposition other than *A*. So, as Twining points out in a case of indirect evidence, there is always a chain of facts involved, that is, there are at least two inferences involved. First, there is the inference from the basic proposition *A*. Then there is the inference to the conclusion that *A* is true as in the case of direct evidence. And then, there is a secondary inference drawing some other conclusion not equivalent to the prior conclusion *A*. As Bentham puts it (1962, 7:644), "When all the evidence is of that sort which is termed direct, no part of it the nature of circumstantial, the case is such as affords not room for any *special* inference—for any other inference than that general one, by which, from the discourse by which the existence of this or that fact is asserted, the existence of that fact is inferred, and credited." The difference between Bentham's criterion and the Jewish classical law criterion is that Bentham's theory is stricter, requiring two propositions to be identical, whereas Jewish law requires only one to be included in the other.

According to Bentham, in every case of circumstantial evidence there are two facts to be considered. Bentham calls the first kind the *factum probandum*, meaning the fact to be proved or, as he calls it, the "principle fact," defined as "the fact the existence of which is supposed or proposed to be proved" (7:1). The other proposition involved is called, by Bentham, the *factum probans*, or the fact to be proved, or as he calls it, the evidentiary fact, "the fact from the existence of which that of the *factum probandum* is inferred." When these two propositions are identical, that is, when the conclusion drawn is identical to the initial fact, then the evidence is direct. But, where these two propositions are not identical, and one requires an additional step of inference mediated from the other, then the evidence is said to be circumstantial.

According to Bentham's theory, evidence is composed of "a chain of facts." What he seems to mean is that evidence is generally made up on the basis of a chain of inferences in which the final conclusion is the ultimate *factum probandum* at issue. Such a chain can be any length, and "chains of different lengths will be frequently exemplified." In a subinference that is part of the chain, the conclusion is a *factum probandum* with reference to the premises in that subinference. The premises play the role of the *factum probans*. Thus whether a proposition is a *factum probans* or a *factum probandum* is a relative matter—relative to the particular inference being considered. The same proposition can be a conclusion in one inference, yet also be a premise in the next inference. But the ultimate conclusion or "ultimate principle fact" as Bentham calls it, occupies one place only in the chain—the very last conclusion in the chain. In a case of direct evidence, the premise of the inference, the *factum probans*, is the

very same proposition as the ultimate conclusion. In a case of direct evidence, what the witness asserts is the very same proposition as the ultimate conclusion to be proved in the case. Direct evidence "consists in the existence of a person appearing in the character of a deposing witness, and, in the way of discourse, asserting the existence of the principal fact in question, on the ground of its having, in some way or other, come within the cognizance of his perceptive faculties." In direct evidence, the inference is, as Bentham puts it, a single one, and "ever so close and necessary a one." For this reason, Bentham writes that in a criminal case, the body of evidence cannot be composed solely of direct evidence, because intention must be proved as well as the factual aspect of the committing of the act (1962, 7:2).

In some passages, Bentham's way of expressing the criterion for distinguishing between direct and circumstantial evidence does not seem to be much if any different from the Jewish classical law criterion. In one passage he writes that the distinction should be made with reference to the relationship between the mass of testimony given by a witness and the "fact to which it is considered as applying" (1962, 7:3). It is direct if the witness represents himself as having observed "any and every" fact at issue. It is circumstantial "in respect of any and every fact not narrated by the testimony." In a case of circumstantial evidence then, the inference must be drawn "from its supposed connection with the facts spoken to by the testimony." It almost seems like Bentham is telling us that the criterion is whether all the facts reported by the witness are comprehensive enough to include the principal fact to be proved. He seems to be using an inclusion criterion. But he can also be interpreted as saying that in direct evidence, the body of facts testified to by the witness is sufficiently comprehensive that it contains within it a proposition that is identical to the principal fact to be proved. So whether, in the end, the classical Jewish law criterion is all that different from Bentham's criterion, in any practical sense, is hard to say. But from a logical point of view, the difference is that while the one criterion is based on inclusion of act-descriptions, the other is based on what appears to be a more narrowly logical relation of equivalence or identity between pairs of propositions.

Perhaps Bentham's criterion can be rescued from these difficulties if we take it to be drawing a distinction that can be applied to two different kinds of testimonial evidence. According to this account, both types of evidence are based on an inference. In direct evidence, the proposition drawn as conclusion is the same proposition as the proposition describing the alleged fact the witness claims to have witnessed. In circumstantial evidence the two propositions are not the same. It should be emphasized that, according to this account, both direct and circumstantial evidence are based on witness testimony. Thus both

are plausibilistic in nature as inferences, according to the argumentation schemes presented in Chapter 2. In the direct kind of evidence, there is an identity of propositions involved. But it is not necessarily the case that the inference is always deductive, or that the inference characteristic of circumstantial evidence is never deductive. What is important is that you look at the structure of the inference as a whole, and not just at the propositional identity contained in it, or lack thereof. Bentham's criterion seems reasonable enough, as long as not too much weight is placed on it. Where it become questionable is in the assumption that there is a sharp distinction in the logic of the two kinds of evidence that can be characterized as follows. Direct evidence can be analyzed purely by deductive logic, and is therefore conclusive. Circumstantial evidence depends on a nondeductive inference that is inconclusive and questionable. Nevertheless, it has proved tempting to try to draw the distinction in this way, by using deductive logic to model the kind of inference characteristic of direct evidence.

4. PATTERSON'S CRITERION

Patterson gives a precise logical criterion to determine the "functional difference" between direct and circumstantial evidence: "Direct evidence is a proposition which is consistent only with either the proposed conclusion or its contradictory; circumstantial evidence is consistent with both the proposed conclusion and its contradictory" (1965b, 5–6). The difference, on this criterion, is that circumstantial evidence is consistent with propositions other than the proposed conclusion or its contradictory, unlike direct evidence. An example is given just below. 'Contradictory' here means opposite, in the sense of (classical) negation. A contradictory of a proposition is another proposition such that both cannot be true and both cannot be false. In other words, one is true if and only if the other is false. For example, "This pen is blue.' is the contradictory of 'This pen is not blue.' Because it is defined in terms of contradictories, Patterson's criterion seems clear and logical, because it is defined using relations well understood in deductive logic.

The examples given by Patterson are helpful in seeing how his criterion works. On the Patterson criterion, you will recall, direct evidence is "a proposition which is consistent only with either the proposed conclusion or its contradictory." He gives the example that if the proposed conclusion is '*a* killed *b*,' and the evidence is '*a* killed *b*,' the evidence "is direct evidence because it is consistent only with the proposed conclusion." According to Patterson, since the evidence proposition, in this case, is inconsistent with the contradictory of

the conclusion, it must be consistent only with that conclusion. In contrast, on the Patterson criterion, circumstantial evidence can "support two inferences; one which coincides with the proposed conclusion, and one which coincides with the contradictory of the proposed conclusion." So, for example, if the proposed conclusion is '*a* killed *b*' and the evidence is '*a* wrote *b*'s wife a love letter,' the evidence is not only consistent with the conclusion, but also consistent with its contradictory (1965b, 5). What Patterson seems to have in mind here (as far as I can tell), is that in this case, the evidence proposition does not necessitate the conclusion, and so is not only compatible with the truth of the conclusion, but also with its falsehood. It is consistent with both possibilities, and could go either way, even though, as evidence, it goes more toward the way of supporting the conclusion.

One can see what Patterson is driving at in making the distinction in the way he does. But by trying to express the criterion in purely abstract logical concepts, using the concept of logical consistency as the basis, the criterion runs into technical problems. One problem is that supposing that the proposed conclusion is the proposition '*a* killed *b*,' then there will be an indefinitely large number of other apparently unrelated propositions, like 'The moon is made of green cheese,' that are consistent with both the proposed conclusion and its contradictory. So it follows that 'The moon is made of green cheese.' will have to count as circumstantial evidence for the conclusion '*a* killed *b*.' Patterson tries to circumvent this problem by pointing out that to qualify as evidence, a proposition must be relevant to the proposed conclusion (1965b, 5). But now the problem becomes one of how you define "relevant." Perhaps some might assume that relevance (in the sense in which evidence is relevant) could be defined within deductive logic, but grave doubts about that assumption have often been expressed, and no such deductive account of relevance that would be sufficient for such a purpose has ever been given. You could define relevance as having common subject matters and give a formal criterion for determining logical implication in the resulting deductive relevance logic. For example, by this criterion 'Bob ate the bananas' and 'Bananas are yellow' are relevant to each other because both share the common subject 'bananas.' Then 'The moon is made of green cheese' will not be consistent with both '*a* killed *b*' and its contradictory, it can be argued, because it is irrelevant to both. But then you can always counter the proposition 'Lee Harvey Oswald killed John Kennedy' is relevant to '*a* killed *b*.' So the problem remains. You can always find some arbitrary proposition at random that is relevant, and is consistent with both the proposed proposition and its contradictory. These messy problems of trying to use formal deductive logics to define relevance have been considered in Walton (1995). The conclusion was that relevance, of the kind important for argumen-

tation, cannot be modeled in deductive logic in a way that is free from paradoxes and counterintuitive results.

The same problem affects the criterion for direct evidence. If the proposed conclusion is '*a* killed *b*,' then is the proposition '*a* killed *b* with a knife' consistent only with '*a* killed *b*' or its contradictory? No—it is consistent with all kinds of other propositions like 'The moon is made of green cheese' or 'Socrates may have used a knife to eat his dinner in Athens long ago.' Of course, these propositions are (presumably) not relevant, in the sense that is important to define relevant evidence in legal argumentation. But then we are confronted with the problem of how to define relevance. That problem is solved in Chapter 7. But it is argued that the only satisfactory solution is providing a dialectical theory of relevance that cannot be reduced to a purely deductive criterion.

So there are a number of ways in which the distinction between direct and circumstantial evidence is quite puzzling, from a logical point of view. The Patterson criterion runs into technical problems because it makes categories of deductive logic the sole basis for drawing the distinction. But the McCormick criterion also falls short for the same reason. Assume that the premise of the inference from testimony is true, i.e., that what the witness reported she saw is veridical, or corresponds to what actually took place. Then by the McCormick criterion, the evidence is direct if the conclusion follows by a deductively valid inference from the premise base. But the inherent problem with this criterion is that argumentation from witness testimony is an inherently plausibilistic type of inference that is not, in general, deductively valid. Of course, you can always make any inference deductively valid by adding the required (missing) premises, which say that the witness can't be wrong. And, it seems, that is exactly what the criterion does, or what it needs to do, to work. But this assumption is unrealistic, in general, because any good theory of evidence should treat evidence based on witness testimony as inherently inconclusive in nature, because it is premised on a basis that could be wrong (and is defeasible) even if it seems to be right. Again, this view of argumentation from witness testimony was the one advocated in Chapter 2. So the distinction between direct and circumstantial evidence is important for a theory of legal argumentation and evidence. But there are some puzzling logical and philosophical questions about exactly how the distinction should best be made and analyzed at a deeper level.

5. WIGMORE ON DIRECT EVIDENCE AND AUTOPTIC PROFERENCE

According to Wigmore, the distinction between direct and circumstantial evidence has no legal utility. He stated that the term "direct evidence" is com-

monly used to "apply only to testimony directly asserting the fact-in-issue," and is a term that "has no utility" (1935, 40). Wigmore gave the following example to illustrate the distinction. Suppose the charge against the defendant is malicious mischief, put forward on the grounds that a witness saw him throw a brick through a window. This case is one of direct evidence, because the witness's assertion, "The defendant threw a brick through the window," is the conclusion to be proved (the fact at issue). But suppose, in the same case, the witness testifies that he saw the defendant running around the corner just after the window was broken. In this case, the testimony is circumstantial evidence, because it testifies only to the fact of the defendant's flight. In other words, the witness in the second case did not directly see the defendant throwing the brick through the window. The throwing of the brick through the window can only be inferred (indirectly) from what was seen. The assertion of the witness is not the same proposition as the conclusion that is supposed to be proved from it.

Why would Wigmore say that this distinction has "no utility," when in fact it makes a distinction that does seem to be of considerable importance in legal argumentation? It does seem to be of importance because care must be taken not to allow a witness in a trial to draw inferences that go beyond what he actually observed. A witness (other than an expert witness) is supposed to testify only to what he directly observed, and should not be allowed to draw inferences based on other assumptions, which could turn out to be wrong, and to be misleading to a jury. Given the importance of this distinction, and the general acceptance of it in modern Anglo-American legal usage, why would Wigmore write that it is of no utility, and even that it has obscured the distinction between circumstantial and testimonial evidence? The reason seems to be Wigmore's belief that both so-called direct and indirect evidence are species of testimonial evidence. Commenting on the pair of cases cited as his example above, Wigmore writes that in both cases, "The psychology of testimony and the rules of evidence are equally concerned" with the testimony of the witness (1935, 40). What Wigmore seems to be saying is that it is important to treat both cases as testimonial evidence, because in the second case, even though the conclusion drawn makes the case classifiable as one of the uses of circumstantial evidence, that circumstantial evidence is still based on testimonial evidence.

To put it another way, what Wigmore seems to find objectionable is not the distinction itself between direct and indirect evidence, but the use of this distinction to obscure the more important and fundamental distinction between testimonial and circumstantial evidence. The problem is that there may be a temptation to define circumstantial evidence by opposing it to direct evidence. Wigmore would regard such an approach as fundamentally misleading because,

as he sees it, circumstantial evidence should always be defined by opposing it to testimonial evidence.

Wigmore frankly admitted that "scientifically" the term 'circumstantial' is "indefensible" and misleading. He wrote that a more correct equivalent would be "nontestimonial," but "no one has yet invented an acceptable substitute for 'circumstantial'" (1935, 38). He made it clear that there is a problem with defining the term 'circumstantial,' and that there is a tendency in law to use the term in different ways. The use of the term 'direct evidence' has further obscured the question of how the term 'circumstantial evidence' should be defined. The difference between the two schools of thought is that one thinks that circumstantial evidence should be defined as indirect evidence, while the other (represented by Wigmore) thinks that both direct and indirect evidence are testimonial, and that circumstantial evidence should be defined as all evidence that is nontestimonial. In modern usage, it seems to be the non-Wigmorite view that has carried the day, but the problem of how to define circumstantial evidence has persisted, and there still appears to be fundamental confusion on the question.

When you first consider Wigmore's classification of autoptic proference (so-called "real" evidence) as not being evidence at all (1935, 39), the idea seems peculiar and nonintuitive. After all, most of us would naturally classify a knife with blood on it that was found at the scene of a murder as "evidence." In fact, in everyday language, as well as legal discussions about such a case, the knife would be called evidence. Wigmore, therefore, is going against both common everyday and legal usage to declare that such accepted usage is incorrect, and ought to be changed, on his view of what evidence is. Of course, such a preemptive move that goes against common usage, is not easy to gain acceptance for. Why would Wigmore make this kind of move?

I think the reasons are to be found in his conviction that his own definition of the concept of evidence is the right one, even despite its evident contravention of common ideas and linguistic usage pertaining to the term 'evidence.' According to the central principle of Wigmore's definition, evidence always takes the form of an inference from a set of facts (premises) to a conclusion. This aspect of Wigmore's theory is perhaps what prompts commentators to see it as a "logical" view of evidence. Why would Wigmore insist on sticking to this logical view of evidence, even against common usage, and seemingly, even against common sense? What is important to recognize is that Wigmore was talking about "evidence" as something being used to prove something. More specifically, legal evidence is evidence precisely because of its capability to have relevance—to have the capability of being used to prove or refute a proposition

at issue in a case at trial. From this viewpoint it is not the bloody knife itself that is the evidence. What is evidence is an inference drawn from observing the knife, or an inference drawn from testing the blood on it, for example. The object is the source or basis of the evidence, in some sense. But it is not itself the evidence, in Wigmore's sense. The evidence, in both the legal and the logical senses of the word, is what can be inferred from the knife, along with other facts, like where it was found in relation to the scene of the alleged crime. The knife is evidence, only insofar as our observing it, testing it, or otherwise deriving facts from it, can be used to prove (along with other relevant facts) something that is of concern to us as requiring proof. In a way then, Wigmore's approach to so-called "real evidence" as consistent with his general theory of evidence, is the right one for anyone accepting that theory, and indeed, is required by the theory (1935).

6. WIGMORE ON CIRCUMSTANTIAL AND TESTIMONIAL EVIDENCE

According to Wigmore, all evidence involves "an inference from some fact to the proposition to be proved." Such evidence falls into two "great classes," testimonial evidence and circumstantial evidence (1940, 1:398). Testimonial evidence has as its basis of inference a special class of facts which Wigmore characterizes as "the assertions of human beings." According to Wigmore, "Testimonial evidence readily defines itself by its name: it is any assertion by a human being, offered to evidence the truth of the matter asserted" (1935, 38). Circumstantial evidence is then defined by Wigmore (1940, 1:399) as nontestimonial evidence: "All remaining facts form a class known as circumstantial evidence." As he puts it, circumstantial evidence is "any and all other evidence." (other than testimonial evidence, that is). Wigmore concedes that this way of making the distinction can be misleading. As he puts it, the term "circumstantial" is "indefensible scientifically," and a "more correct equivalent would be "nontestimonial." He adds apologetically that nobody has yet invented an acceptable substitute for "circumstantial" (1935, 38).

Testimonial and circumstantial evidence are intermingled in several series of chains of evidence, like freight cars in a railroad yard, where on each switch track there is a line of cars linked together, some of one kind, some of another kind. Another example Wigmore uses is a case of burglary (Wigmore 1935, 40–41):

> *Case 3.2* A homeowner testifies he saw D, an intruder, taking jewelry. A bystander testifies he saw D jumping out of the window of

> the house. A policeman testifies he later found jewelry in D's trunk. The homeowner testifies that the jewelry found in the trunk is the same jewelry that was in his house.

Wigmore classifies some of these pieces of evidence as circumstantial and some as testimonial (1935, 41). The "fact of D's jumping hurriedly out of the window" is classified as circumstantial evidence, but is also "evidenced testimonially" by the witness who saw the act. Here, it would seem, D's act of jumping out of the window is circumstantial evidence, but the way the court actually received this evidence is in testimonial form, because it is related by the bystander (a witness). The same kind of analysis would appear to apply to the jewelry finding. As Wigmore puts it, "The taking of the jewelry is evidenced testimonially by the witness who saw him, and circumstantially by the finding of the jewelry in his trunk, which in turn is evidenced testimonially by the combined testimony of the policeman who found it" (1935, 41). Here, it seems, we could rephrase Wigmore's way of putting it, and say that the finding of the jewelry in D's trunk is circumstantial evidence of the taking of the jewelry by D. But how the court gets access to the evidence of the finding of the jewelry in D's trunk is through the testimony of the policemen who found it there. So from that point of view, the evidence is testimonial.

Wigmore's account is somewhat confusing, for a couple of reasons. One is that from the court's point of view, all (or nearly all) the evidence received is testimonial. If so, what role does the circumstantial evidence play? One even wonders what the circumstantial evidence is, apart from the testimonial evidence that reports it? If the same taking of the jewelry is at the bottom of both, isn't the difference just one of how that evidence is presented? It seems that basically the same evidence is circumstantial from one point of view, but testimonial when looked at from another point of view.

Without laboring a technical point too much, there is an important but subtle logical distinction to be made here. Is the finding of the jewelry both circumstantial and testimonial evidence? Or is it better to say that the finding of the jewelry is circumstantial evidence, even though the court finds out about it, or receives it, as testimonial evidence? Wigmore weaves around these questions by writing that the taking of the jewelry is "evidenced testimonially" by the witness, but is "evidenced circumstantially" by the finding of the jewelry in the trunk. In other words, in his terms, the taking of the jewelry is "evidenced" (using the verb) circumstantially by the policeman's act of finding and testimonially by the policeman's act of witnessing. What his way of putting the distinction seems to tell us is that although the finding of the jewelry is at the bottom of both the circumstantial and testimonial evidence, the difference lies in how

the inference is drawn from the premise that describes the finding of the jewelry. When the evidence for the taking of the jewelry by D is testimonial, the premise is the testimony of the policeman who says he found it in the trunk. When the evidence of the taking of the jewelry by D is circumstantial, the premise is the actual finding of the jewelry in the trunk, a concrete action that took place at some specific place and time, and involved some real items (the jewelry). It seems then that the finding of the jewelry is involved in the premissary assumptions in both the instances of circumstantial and testimonial evidence. What accounts for the difference is how the premise is used in an inference to infer the conclusion that D took the jewelry from the house.

Wigmore's way of presenting this apparently simple and typical legal case of the use of evidence illustrates very well how both kinds of evidence are combined in legal reasoning. Somehow the two kinds of evidence combine together to bear on some ultimate issue in a trial. Although in fact nearly all, or perhaps even all the evidence used in court is testimonial, still somehow, circumstantial evidence seems to play a role by combining with testimonial evidence in a case. This process of use of evidence to reason toward a conclusion in a specific case is well illustrated by Wigmore's simple example. Chains of evidence composed of bits of testimonial and circumstantial evidence of the kind illustrated are arrayed into series of inferences that move toward a conclusion to be proved. What is characteristic of Wigmore's common concept of evidence of both circumstantial and testimonial types is its inferential nature. All evidence takes the form of an inference from premises that express facts to a conclusion that is a proposition to be proved. So what about so-called "direct" or "immediate" evidence, sometimes also called "real evidence"? What about an object, like a knife or a gun, that could function as evidence of something, even though it is direct perception of the object, as opposed to inference, that appears to constitute the evidence? Wigmore takes the example of bringing a knife into court. In such a case, it is often said that the evidence can be classified as "real" or "immediate" evidence. These terms are said to be applicable, in Wigmore's terms, in an instance "where the thing which is the source of the evidence is present to the senses of the tribunal." Wigmore admits that bringing the knife into the courtroom is a way of "producing persuasion" that the knife exists. So, in that way, the act of bringing the knife into the courtroom can function as a kind of evidence. But, he adds, "no logical process is employed." So it is not giving evidence in the sense "that it is asking the court to perform a process of inference" (1940, 397). To describe this kind of evidence, Wigmore uses the expression "autoptic proference" (1983, vol. 1a, 944).

Wigmore writes that autoptic proference is used in the courts, in the jury views of land, in the viewing of documents, and exhibitions of personal injuries.

But he insists on the technical point that, according to his definitions, it is not evidence, as such. His reason is that because it does not require the performing of an inference, "it therefore gives rise to no questions of relevancy." This point is a subtle one, but an extremely important one (1940, 397). For Wigmore, it is vital that evidence be in the form of an inference, precisely because relevance, on his theory, is a chaining together of such inferences toward an ultimate proposition at issue, to be proved or disproved. Relevance, of this kind, is a vital part of Wigmore's theory of evidence.

7. THE HOPE HEAD CASE

As shown by Bentham's account above, the basis of the difference between circumstantial and testimonial evidence lies in how the chain of inferences used in the evidence traces back to some origin. In the case of testimonial evidence, when you trace the chain of inferences back to its basis, there is just the testimony of the witness there, and nothing else to back it up. But in a case of circumstantial evidence, even though testimony may be involved in the sequence of inferences at one or more stages, still, when you get back to the basis of the evidence, there will be some facts there that can be verified by others without depending wholly on what a witness has said.

A historical example may be used to illustrate this characteristic of circumstantial evidence. The so-called Hope Head is a colossal head of a goddess sold to the University of Pennsylvania Museum in 1930. It was probably acquired from Henry Thomas Hope, the son of Thomas Hope (1769–1831), a collector of antiquities who owned a country house in England containing a collection of ancient objects sold and dispersed in 1917. Because Henry Thomas Hope collected exclusively in Italy, and many Greek masters of this type of sculpture are known to have been in Italy around 100 B.C., it can be plausibly conjectured that the Hope Head was made by a Greek sculptor active in the environs of ancient Rome and was brought from Italy to England by Henry Thomas Hope. Brunilde S. Ridgway (1996) argued that various pieces of evidence, including the comparison of the Hope Head with comparable sculptures found in a villa in Herculaneum and now kept in the Naples National Museum, can be combined to show that such a conclusion is plausible.

Why does Ridgway describe this case as one of "circumstantial evidence" (1996, 55)? In my opinion, it is because when you look at the assembled body of evidence in the case, you can see the chain of inference traces back to an origin that describes circumstances that have a basis that can be inspected and verified by anyone. Testimony is certainly involved, both the testimony found

in diaries and other historical documents written by witnesses, and the testimony of those involved in the history of the provenance of the Hope Head, telling us how it got from here to there. But part of the evidence consists in the comparison of the Hope Head with a similar head found in the Naples Museum. It is known exactly where this other head came from, and so its historical origins can be quite well verified. And so by comparing it to the Hope Head, whose origins are more obscure, but to which it bears important similarities, a plausible conclusion about the origins of the Hope Head can be drawn. But both heads still exist, and anyone can go to both museums, inspect them, and compare one to the other. That is why this case is justifiably classified as one of circumstantial evidence.

Of course, not everyone is an expert, and it takes an expert to make a knowledgeable comparison of the two heads, and draw an authoritative conclusion on that basis. So expert testimony is involved. But even though testimonial evidence is involved in the body of evidence used to draw the conclusion in the Hope Head case, looking at the case as a whole, we call it one of circumstantial evidence. Why? Once again, it is because a significant part of the basis of the evidence from which the conclusion is drawn consists of circumstances that are not wholly dependent on witness say-so. The heads are there and can be inspected by anyone. And various other items of archeological evidence enter the picture, so that these circumstances that can be factually verified or inspected, independently (to some extent at least) from having to go on what was said by a witness. In this kind of case, it is appropriate to classify the evidence as circumstantial.

The other reason for classifying the evidence used in the Hope Head case as circumstantial can be appreciated by realizing how much of the evidence in the case is conjectural, because so much of the evidence is missing. In cases of works of art like this one, what is called "provenance," or knowing the chain of ownership of the item, is regarded as vitally important. To definitely confirm Ridgway's conjecture that the Hope Head was made by a Greek sculptor in the environs of ancient Rome and brought to England from Italy, we would have to have some direct evidence linking the Hope Head with its origin near Rome. And then preferably, we would want some evidence showing that Hope collected it from that site near Rome, and took it from there direct to his home in England. Or if there was some other chain of events taking the Hope Head from Rome to some other place before it wound up in England, we would need to know what other destinations it arrived at, and how it got from each one to the next one, eventually coming to England. If a chain of events like that could be documented, with testimony or physical facts that could confirm each stage in the journey, then we might have what could be called "direct" as opposed to

merely circumstantial evidence that the Hope Head did indeed come from the area around Rome originally. In such a case, the evidence was originally described as "circumstantial" because it was incomplete and conjectural. The actual facts about how the Hope Head got from one place to another are not known. So the best we can do is argue the case on the basis of its similarity to another head that does show firmer evidence of having been done by that Greek sculptor near Rome. So we call such evidence circumstantial because it is incomplete, and is therefore based on mere conjecture, as opposed to facts that would confirm the provenance in the case.

The second reason for calling the evidence circumstantial is different from the first. The first reason contrasted circumstantial with testimonial evidence. The second reason contrasted circumstantial evidence with direct or more factual or complete evidence that was not so conjectural in nature. The second reason has to do with the completeness of the evidence. The first reason had to do with the subjectivity or objectivity of the evidence. The first reason classifies the evidence as circumstantial on the grounds that it traces back to a set of circumstances that can be inspected and verified by anyone. The second reason classifies the evidence as circumstantial on the grounds it is incomplete and conjectural, because direct evidence (of provenance) is not available.

8. THE FIVE CRITERIA SUMMARIZED

There are five criteria for distinguishing between circumstantial and direct evidence. With respect to each of the five as summarized below, the criterion used to determine what is direct evidence in a case is presented. Then any evidence that is not classified as direct will be counted as circumstantial. (1) According to the Jewish classical law criterion, the witness must see the complete *actus reus*. (2) According to Bentham's criterion, evidence is direct where the *factum probans* is identical to the *factum probandum*. (3) According to the McCormick criterion, direct evidence is evidence which, if believed, resolves a matter at issue. (4) According to the Wigmore criterion, testimony directly asserting the fact at issue is direct evidence. (5) According to the Patterson criterion, a given proposition is direct evidence for a proposed conclusion only when it (the given proposition) is consistent only with either the proposed conclusion or its contradictory. Not too much weight should be put on the Wigmore criterion, because Wigmore thinks that the distinction between direct and circumstantial evidence is confusing and ought to be abandoned in favor of drawing a distinction between circumstantial and testimonial evidence.

Each criterion appears to be different from the others. Let's take a standard

kind of case of a murder trial where the factum probandum is 'Wilma killed Bob.' Suppose it has been alleged by the prosecution that a witness saw Wilma stabbing Bob with a knife. According to the Jewish classical law criterion, the witness needs to have seen "the whole act" for the evidence to be direct. Supposedly then, the witness needs to have seen not only the stabbing, but also how Bob died as a result of the stabbing. For example, if the witness only saw the stabbing, it is possible that Bob could have wandered off the scene, and then been stabbed or shot by someone else, and that second injury could have been the cause of death. The problem here is that causality cannot be directly observed. It is always proved by means of an inference. When two events are observed, the conclusion that the one caused the other is always drawn by means of a probabilistic inference that is inherently defeasible in light of new evidence. It seems then, that on the Jewish law criterion, what the witness needs to see, for the case to be one of direct evidence, is that Wilma killed Bob. But once again there is a problem. Is a killing an act you can establish purely by observation, or does it require a (probabilistic) inference? To prove the act in question is a killing, doesn't it have to be shown that the stabbing (or whatever kind of act was observed) really was the cause of death? Otherwise, it has not been proved that the stabbing was a killing.

In other words, precisely how you describe the act is what is at issue. The "whole act" must include describing the act as a killing. The witness must have seen a killing, and not just a stabbing. These observations take us on to the Bentham criterion. For it seems that what this criterion is telling us is that precisely this sort of identity of the two acts is required for the case to be one of direct evidence. If the *factum probandum* is 'Wilma killed Bob,' then the *factum probans* must also be 'Wilma killed Bob," and not just some other proposition like "Wilma stabbed Bob with a knife.' On both the Jewish law criterion and the Bentham criterion, this lesser type of *factum probans* will not do. To be direct evidence, the *factum probans* has to be identical to the *factum probans*.

But there does seem to be a significant difference between the Jewish law criterion and the Bentham criterion. Consider the following inference.

FACTUM PROBANS: Wilma stabbed Bob slowly with a knife.
FACTUM PROBANDUM: Wilma stabbed Bob with a knife.

This kind of inference poses a classical problem that has been much studied in the philosophy of action. How are the two propositions related? Is one the same action as the other, or are they different actions? Some philosophers (unifiers) say they represent the same action. Others (multipliers) say that they represent two different actions. Certainly, we can say that the one act-description

is more specific than the other. The *factum probans* contains more information than the *factum probandum*.

Presumably then, on the Jewish classical law criterion, the inference above does represent a case of direct evidence. Reason: what the witness saw includes more than the act to be proved. So the witness has seen the complete *actus reus*, in the sense required. On the Bentham criterion however, the case is not one of direct evidence. Reason: the two propositions are not identical. One is not the same as the other. In fact, one contains more information than the other, showing that the two propositions are different. One only describes a stabbing, while the other describes a stabbing slowly, indicating an additional fact about the stabbing.

The other criteria are less clear, and it is less obvious how to interpret them exactly. To clarify the McCormick criterion, let's say as above that the matter at issue (the *factum probandum*) is whether Wilma killed Bob. What then would be required, if believed, to resolve the issue? Would it be enough if a witness saw Wilma stabbing Bob? Well, it might be. It seems to depend on the case, and on what else is known or believed about the case. If there was no reason to doubt that the stabbing was the cause of Bob's death, then, other things being equal, witness testimony of the stabbing might be all that is needed to resolve the matter in issue. The McCormick criterion is more than a little fuzzy, because of its contextual nature. Everything depends on exactly what is meant by 'if believed, resolves a matter in issue.' Is resolution meant to be contextualized to a specific court, a specific jury, or a specific set of legal rules? Or does it mean 'sufficient by itself to resolve the issue, without the addition of other facts or findings in a case'? We can't really tell, and so the McCormick criterion, without further specification or explanation, does not seem to be very helpful for giving us a handle on how to distinguish between direct and circumstantial evidence.

Much the same remarks are in order for evaluating Wigmore's criterion. Like the McCormick criterion, it is not very helpful without additional clarification. Indeed, there is a circularity in the Wigmore criterion. It defines direct evidence as testimony directly asserting the fact at issue. But what is it to directly assert the fact at issue? The occurrence of the word 'direct' in the criterion even indicates a circularity. To determine what is direct evidence in a case, we have to apply a criterion that includes a finding of whether a given proposition directly asserts a fact or not. But this kind of finding is the very distinction that needs to be determined. It should be added that this circularity may have been intentional on Wigmore's part, since he was not really a believer in the usefulness of the distinction between direct and circumstantial evidence.

Finally, we get to the Patterson criterion. It is a precise criterion, because it

is expressed using the logical terms 'consistent' and 'contradictory.' Or at least it appears to be precise. But the problem is that if the terms 'consistent' and 'contradictory' are interpreted as meaning what they are taken to mean in the theory of classical deductive logic, technical problems about the meaning of relevance appear. These technical problems destroy the practical usefulness of the theory, once it has been expressed in the precise system of deductive logic. Whatever practical usefulness the theory has depends on our not interpreting the terms in the theory in this precise way. Instead we need to interpret them in a much broader way, as referring to consistency and contradictoriness of propositions in a natural language. Even then, the system seems to fall apart with technical difficulties, suggesting that the direct-circumstantial distinction is contextual in nature, and varies from case to case in a way that cannot be captured by a purely deductive or formal logical criterion.

When we look at all five criteria, we see that the fundamental basis of the distinction between direct and circumstantial evidence is heavily dependent on the underlying notion of one act being the same as, or different from, another act. The following question is posed: what is the whole act, defined in such a way that another act can be part of, or contained in, the whole act? The questions of action identity and action inclusion have been the subject of considerable investigation in the branch of philosophy called action theory. They have turned out to be difficult problems to solve. There are many different theories and viewpoints on how to individuate actions, but no single theory has been established. What seems to be indicated then is that the distinction between direct and circumstantial evidence may be a lot harder to draw, in a precise way that would be useful for the theory of evidence, than initial appearances might suggest. What seems to be indicated is that Wigmore was right to be very cautious about putting too much weight on the distinction between direct and circumstantial evidence, and was fully justified in having reservations about the clarity and usefulness of that distinction.

The distinction between direct and circumstantial evidence is commonly accepted in everyday conversational speech, and is a common part of legal discourse as well. But there are good reasons to doubt whether it is clear enough, at the present state of analysis, to function as a basic criterion to be used in legal rules of evidence. The problematic nature of the distinction suggests that, for the present, it ought to be kept on the sidelines, and not used as a basic tool for setting out the guidelines used in the rules of evidence. For these reasons, it would appear that the framework adopted by the Federal Rules of Evidence (FRE)—essentially that of Wigmore—of framing the rules in terms of probability and relevance, and avoiding central reliance on the direct-circumstantial criterion, is based on a sound philosophy.

9. HOW USEFUL IS THE CONCEPT OF CIRCUMSTANTIAL EVIDENCE?

The concept of circumstantial evidence does not play any significant role in the criteria for evidence set out in the FRE. But 'circumstantial evidence' is such a commonly used term in everyday discourse about evidence, that it is scarcely possible to avoid dealing with the term in any discussion of evidence, especially legal evidence. And in fact the term generally does play a significant role in philosophical discussions about what evidence is. In this book then, we can scarcely avoid the subject.

On the other hand, the term 'circumstantial evidence' is ambiguous, as used both in legal discussions, and more generally in philosophical discourse about evidence. Sometimes it is taken to mean nondirect evidence. Sometimes it is taken to mean nontestimonial evidence. This ambiguity was well articulated by Wigmore's analysis (1935). Wigmore was also well aware of the problems inherent in trying to define circumstantial evidence by opposing it to direct evidence. Like many ambiguous terms, 'circumstantial' is sometimes taken, confusingly, to mean one or more things at the same time. If the term is ambiguous and confusing, and if it plays no really significant role at all in the basic concepts that are at the foundations of the legal rules of evidence expressed in the FRE, why not just scrap the term? Why not abandon it altogether? There are two reasons. One is that that the term is so well established in discourse about evidence that, for practical purposes, it would be difficult and problematic to ignore it, or try to get rid of it. The other reason is that, in both of its main meanings, when it is used as the opposite of testimonial evidence, it does have practical value.

When contrasted with testimonial evidence, the concept of circumstantial evidence serves to mark off evidence that is not based on argument from testimony. There are a number of distinctive factors of testimonial evidence that require special consideration from a logical point of view, as indicated in Chapters 1 and 2. The most significant distinguishing factor, and the most important one to begin with, is that testimonial evidence is always based on the credibility of the person who is testifying. In contrast, circumstantial evidence (as circumstantial evidence) is not dependent on the credibility of a proponent or witness who brings forward and stands behind what is said, as the basis of the evidence. In a case of testimonial evidence, a proponent makes some assertion, and vouches for or stands behind the proposition contained in that assertion. The proponent, for the purposes of testimonial evidence, must be seen as an agent, an entity that has access to information or knowledge, that has a certain degree of autonomy, and that has certain long-term characteristics identified with qualities of character, like truthfulness. Such an agent typically has a reputa-

tion—for example, a reputation for veracity, or a reputation for nonveracity. For example, if that agent can be shown to have lied in the past, such a finding will indicate a character for not telling the truth. That finding, in turn, will downgrade the credibility of the agent. And such a downgrading of credibility will detract from the plausibility of what the agent now asserts. In short, any proposition put forward to be accepted as based on testimonial evidence, should be graded as more or less acceptable on a basis that includes the credibility of the agent as an essential part of the inference which has that proposition as its conclusion.

With circumstantial evidence, the credibility of the agent does not play an essential part in the drawing of the conclusion. For example, consider Wigmore's case where the finding of some jewelry in D's trunk was taken as evidence that D took the jewelry from someone's house. As long as we are not treating the finding of the jewelry as testimonial evidence—say, as based on the testimony of the policemen who found the jewelry in the trunk—then the finding of the jewelry is evidence in itself, that stands on its own as being evidence, and we may classify it as circumstantial evidence. Essentially the reason is that to treat the finding of the jewelry as evidence, we do not have to mediate our identification, analysis, or evaluation of it as evidence through our estimate of the credibility of any source who allegedly found it there, or otherwise observed its being found there. What is important (as circumstantial evidence) is only that it was some jewelry of a kind that can be identified, and linked to the present case, and that it was found in a certain place, D's trunk, which location is also significant with respect to the given case, and what is at issue in that case. The distinction made here is a very important one, from a logical point of view. So the concept of circumstantial evidence, when used as the opposite of testimonial evidence, marks off a useful distinction.

The term 'circumstantial evidence' also does a useful job in cases where it has been used as the opposite of direct evidence. In some cases, it is the nature of the case that the act or event at issue is not observable by either side. Both sides have to base their case on an inference from some other acts or events that can be observed. In this kind of case, it is appropriate to say that both sides base their case on circumstantial evidence. The following case (141 SO. 762 Miss. 1932), reported by Carl C. Lehman (1996, 495), is a good example.

> In *Curtiss Candy Co. v. Johnson*, the plaintiff sued the manufacturer of Baby Ruth Candy Bars after he was injured by glass he swallowed when he ate one of the defendant's candy bars. The defendant presented evidence that no articles of glass are permitted in the factory; that in addi-

> tion to their uniforms, employees are only permitted to carry keys for their lockers while working; and that modern methods are employed in the manufacturing process that would prevent foreign materials like glass from contaminating a candy bar. The court held that the plaintiff's assertions that the wrapper was sealed and the smooth chocolate covering was intact when he proceeded to eat the candy warranted the jury's finding that the candy bar had been produced with the glass imbedded in it.

The nature of this case is that neither side saw the glass being inserted into the candy. Or if they did, the nature of the case is such that they are not prepared to admit seeing any such thing. Now the alleged event is in the past, presumably no direct knowledge of how it actually came about is available. All the one party can do is to try to argue that it implausible that the glass could have been inserted after it left the factory. All the other side can do is to try to argue that it is implausible that the glass was inserted into the candy bar while it was still in the factory. And so, that is exactly what both sides do, based on premises reporting other facts about how the candy was manufactured, and on how the wrapper and chocolate covering were intact when the plaintiff proceeded to eat it. In this case, it is useful to appreciate how the argumentation on both sides is circumstantial in nature (using the term as opposed to direct evidence).

The best conclusion about what to do with circumstantial evidence, for the present, is to recognize (a) that the term is ambiguous, and can be confusing and misleading, but (b) it does an important job, in some cases, and can be lived with, provided the ambiguity in it is clearly recognized, and (c) it represents only a rough kind of distinction that leads to logical difficulties if too much weight is put on it.

10. LOGICAL DIFFICULTIES OF CIRCUMSTANTIAL EVIDENCE

Wigmore was right to say that the concept of circumstantial evidence can be given a clear analysis if it is defined as being the opposite of testimonial evidence. His hypothesis is confirmed by the existence of the form of argumentation called argument from testimony. It is a well-defined form of argument in which the inference depends on the credibility of the agent who testified to the proposition put forward. Wigmore was also right to warn of the logical difficulties inherent in the concept of circumstantial evidence if it is defined as the opposite of direct evidence. The problems in the five criteria have provided

abundant support for that hypothesis. Can these problems be dealt with? Is there any indication that they could be overcome?

One way to see the distinction between direct and circumstantial evidence shows some promise. The various forms of inference analyzed in Chapter 2 were plausibilistic in nature, meaning that even if all the premises of the inference are true (acceptable) that is no guarantee that the conclusion is true (acceptable). These inferences are conjectural, meaning that if the premises are true, a weight of support is given to the conclusion making it more plausible, but still subject to defeat by new evidence. By way of contrast, in a necessary inference, sometimes called a deductively valid inference, if the premises are all true, the conclusion must be true. It is not logically possible for the premises to be true and the conclusion false. What is suggested by this distinction is that circumstantial evidence can be identified with the plausibilistic type of inference, while direct evidence can be identified with the necessary or deductively valid type of inference. Generally, this way of making the distinction does seem to be at the bottom of Patterson's approach, and perhaps Bentham's as well.

The problem with this approach is that if you try to formalize it, for example as Patterson does, by equating the notion of a valid inference with classical deductive logic, you run into technical problems. But as long as you do not try to formalize the criterion, it seems to be generally reasonable. But you could say the same thing about the Jewish classical law criterion. As long as you do not try to put too much weight on the notion of the complete *actus reus*, the criterion seems to make sense. But when you try to set up a formal logic of action-propositions, or to analyze what an action is in a precise way, the criterion seems to run into technical problems, of a kind that have been investigated in philosophy.

In the branch of philosophy called action theory, many problems have been posed about how to individuate actions (Goldman 1970). For example, suppose that Wilma stabs Bob in Texas and then Bob drives away, severely injured, and dies of his wounds the next day in Arizona. When did the killing take place? In Texas, or in Arizona? Or did it take place over the whole intervening period, gradually, between the stabbing and the death? These are hard questions to answer, and in ordinary language, there is no one answer that fits all cases.

Another philosophical question that can be asked is whether the killing is the same action as the stabbing. Sometimes we talk that way, but more strictly speaking the two actions are not the same. For example, if there were to be another intervening event in the case, for example if Bob's wounds were treated ineptly by a doctor before he died, then it might be incorrect to identify the killing with the stabbing. Only if the stabbing was the sole cause of death would it be nonmisleading to say that the killing was the same act as the stabbing. Or

perhaps more correctly, we should say that the death was brought about by the stabbing, and that the whole sequence of the one event leading to the other is the act of the killing.

Some other kinds of cases that have been studied include the following one. Suppose Wilma saw Bob extend his arm out of the window of his car as he was making a turn. Did Wilma see Bob signal a turn? Well, maybe. But suppose that a hand signal does not count as a legal way of signaling a turn in that jurisdiction. Was the act one that can be properly described as signaling? Normally we would not contest the claim that Bob's extending his arm out the car window is the same act as Bob's making a turn signal. But in some cases, the two actions might be seen as different. Perhaps the most accurate way of describing the case is to say that Bob signaled the turn by extending his arm out the car window. The two acts are related in the sense that one generates the other. But it does not work the other way around. We would not say that Bob extended his arm out the car window by making the turn signal. This observation is further evidence against the hypothesis that the two actions are identical—that they are one and the same action, or equivalent to each other as actions.

It seems that there are different ways of describing what may be called, in some sense, the same actions. For example, take the act-descriptions, 'Bob slowly extended his left arm out of the car window' and 'Bob extended his arm out of the car window.' These two descriptions represent the same action, but the first act-description contains more information than the second. So, in another sense, the two act-descriptions are not the same action. One is more specific than the other. In a sense, we could say that the one action includes the other. But this relation of act inclusion is not symmetrical. So it would be incorrect to say that the one action is the same as the other, or is equivalent to the other.

The problems in the theory of action affect the way the distinction between circumstantial and direct evidence should be made. For in criminal cases, when discussing the evidence, and trying to judge whether one proposition is identical to, or equivalent to another, typically the problem is whether one action can be described as being the same as another. On Bentham's theory, the criterion of evidence being direct as opposed to circumstantial is whether the *factum probandum* is identical to the *factum probans*. So the very question, in the illustrative kind of example we have considered, is whether the act described as a stabbing would be the same act as that described as a killing. But deductive logic of the classical sort does not give the answer to this question. What we would need to answer this question is a logic of actions. One of the things such a logic of actions would tell us is how to determine whether two act-descrip-

tions are equivalent in a given case, so that we may say that the one act is the same as the other for the purposes of that case. But so far we do not have any well-established action logic of this sort, even though some formal action logics do exist. So right now, we do not have any way of solving these philosophical puzzles about the individuation of actions. And so, right now we do not have any way of determining in a given case whether evidence in that case should be classified as direct or circumstantial.

The conclusion is that the distinction between circumstantial and direct evidence is too shaky a foundation to build a theory of evidence on. But Chapter 3 has indicated many of the other notions that are the building blocks of any theory of evidence. Evidence generally takes the form of an inference. The premise is generally some alleged finding. Witness testimony, for example, is an important kind of evidence, allegedly based on what the witness saw, heard, or was in a position to know about. The conclusion is drawn from such a premise by plausibilistic reasoning. And then that conclusion is relevant in a given case if it can be used to prove or disprove the *factum probandum* in the case. Another important building block of evidence revealed by the analyses of Bentham and Wigmore is the chaining of inferences. Evidence takes the form of a chaining of inferences that should move toward proving the *factum probandum* as the last conclusion in the chain. All these components are the basic building blocks of evidence. But how are they put together? What forms do such inferences take? Chapters 2 and 3 indicated they are generally not deductive inferences, but tend to be abductive or plausible inferences. Chapter 4 studies this type of inference.

4

PLAUSIBILITY AND PROBABILITY

Many different forms of inference were identified in Chapter 2. In Chapter 3, some examples showed how these plausible inferences are chained together in a given case to support an ultimate conclusion. Wigmore's jewel-theft case shows how such chains of plausible inferences are typical of fact-finding argumentation in law. The Hope Head case shows how the same kind of plausible reasoning is used in the same pattern of chaining in nonlegal reasoning. But what kind of inferences are these single inferences that make up the chain? They do not appear to be deductively valid inferences. Nor do they appear to be based on induction and probability of the statistical kind. All of them are based on major premises that state how things may generally be expected to go in a normal case. The minor premise describes a particular case that is presumed

(defeasibly) to fit the requirements of a normal case. All of these inferences are based on assumptions about kinds of situations that are familiar to us as persons or agents who act in these situations every day, and are familiar with how they can be generally expected to turn out if things go the normal way. None of these inferences is conclusive. They are all conjectural, and represent a kind of inference in which, if the premises are acceptable, a small weight of evidence is shifted toward acceptance of the conclusion. All of these inferences represent a kind of evidence that could be called plausibilistic. Each has probative weight. But by itself, no single inference is complete or sufficient as evidence to decide the ultimate outcome of a case. To decide such an outcome, a large body of evidence, including many of these inferences, needs to be chained together. Although each individual inference gives only a small weight of evidence, that single inference may play a significant role in shifting a burden of proof one way or the other in a case.

Historically, this kind of reasoning was called "probabilism." To many, no doubt, the use of this term has long suggested that the ancient views about plausible reasoning, once advocated by the skeptical philosophers in Greece, were just out-dated and crude representations of the modern notion of probability. Inferences based on modern statistical probability, since the time of Pascal, can be measured by the probability calculus. Chapter 4 will show that this view of plausible reasoning as a form of crude prehistoric probable reasoning is mistaken. Plausible reasoning is different from either deductive or inductive (probabilistic in the modern sense) reasoning. I shall explain how plausible reasoning works, and thereby begin to show how it is the most important kind of reasoning in legal argumentation. Chapter 4 will also restore the imbalance between the privileged status of deductive and inductive reasoning and the shaky status of plausible reasoning. It will be shown that plausible reasoning not only has legal roots going back from Wigmore to Bentham and Locke. It has roots that go back to the ancient Greek philosophers. The ancient skeptical philosophers were preoccupied by the fallibility of the kind of reasoning used in everyday and philosophical thinking. One of them, Carneades,[1] met these

1. Carneades (c. 213–128 B.C.) was the head of the third Platonic Academy, or so-called New Academy, that flourished in the second century B.C. Born in Cyrene, Cyrenaica (now in Libya), he lived to be around eighty-five years old, becoming blind in his old age (Hallie 1967, 33; DL IV, 65). He was known to be a very hard worker in his philosophical pursuits—so much so that according to Diogenes Laertius (DL IV, 62), he let his hair and nails grow long from devotion to study. In 155 B.C., he was one of three ambassadors chosen to represent Athens at Rome. He developed a philosophy, called academic skepticism, that arose as a response to previous philosophical schools of thought. Previous philosophers like Plato, Aristotle, and Epicurus had developed what were called "dogmatic" philosophies by the skeptics, because they all proposed criteria for truth or acceptability of opinions that could not be proven (at least, proven beyond doubt), and therefore had to be

doubts by inventing a theory of plausibility (traditionally translated as "probability"). I shall argue that this notion of plausible reasoning is the basis of the notion of probative weight that is fundamental to grasping how legal argumentation is used in evidence law.

1. A THIRD TYPE OF REASONING

Is there a third kind of reasoning, other than deductive and inductive reasoning? It seemed for a long time in the history of logic that there was no third kind of reasoning of this sort. If there was, it was a Peircian type of "abductive" reasoning that was not well understood or highly developed and deserved nothing more than a bare mention in the logic textbooks. Then along came (quite recent) developments in computer science, especially in AI and robotics, that made so-called abductive reasoning very prominent. Default reasoning of a kind subject to exceptions, and different from either deductive or inductive reasoning, came to be a central preoccupation in the computer field. The philosophical question is thus raised whether there is some third type of reasoning that is distinctively different from deductive and inductive models of reasoning, and that is also important to be studied as a type of reasoning in the logic curriculum. Does this relative newcomer on the scene require a rethinking of the scope and nature of logic as a discipline, and an adjustment of the subject matter of logic? Logic textbooks are very conservative (at least the ones that treat formal, deductive logic centrally), and one gets the impression of no big shift in the treatment of the two most popular logic textbooks, Copi and Cohen (9th ed., 1994) and Hurley (6th ed., 1997). Abductive inference is often contrasted with deductive and inductive inference. In a deductively valid inference, it is impossible for the premises to be true and the conclusion false. In an inductively strong inference, it is improbable (to some degree) that the premises are true and the conclusion false. In an abductively weighty inference, it is implausible that the premises are true and the conclusion is false. The abductive type of inference tends to be the weakest of the three kinds. A conclusion drawn by abductive inference is an intelligent guess. But it is still a guess, because it is tied to a incomplete body of evidence. As new evidence comes in, the guess could be shown to be wrong. Logicians have tended to be unwelcoming to allowing abductive inference as part of logic, because logic is supposed to be an

accepted only provisionally, or subject to doubts. Because of the apparent impossibility of proving any philosophical viewpoint indubitably, there arose a skeptical school of thought. Carneades criticized both the dogmatic and skeptical schools of thought, and from these negative criticisms arose his own philosophy—it could be classified as a form of modified or partial skepticism.

exact science, and abductive inference is inexact, and subject to being overturned by further evidence in a case. And yet Peirce showed how abduction is used in scientific reasoning.

Abduction is often associated with the kind of reasoning used in the construction of hypotheses in the discovery stage of scientific evidence, as indicated in Chapter 2. Peirce described abduction as a process "where we find some very curious circumstance, which would be explained by the supposition that it was a case of a certain general rule, and thereupon adopt that supposition" (1965, 375). The description given by Peirce suggests that abduction is based on explanation of a given fact or finding, a "curious circumstance." The words 'supposition' and 'adopt' suggest the tentative nature of abduction. As noted in Chapter 2, you can accept an abductively derived conclusion as a provisional commitment even if it is subject to retraction in the future.

Two examples given by Peirce can be used to illustrate what he means by abduction. The first example shows how common abductive inferences are in everyday thinking (1965, 375).

> I once landed at a seaport in a Turkish province; and, as I was walking up to the house which I was to visit, I met a man upon horseback, surrounded by four horsemen holding a canopy over his head. As the governor of the province was the only personage I could think of who would be so greatly honored, I inferred that this was he. This was an hypothesis.

The second example quoted below can be used to illustrate abduction as used in a science, the science of paleontology.

> Fossils are found; say, remains like those of fishes, but far in the interior of the country. To explain the phenomenon, we suppose the sea once washed over this land. This is another hypothesis.

The abductive inference in these cases follows the pattern of inference to the best explanation. We know that fishes require water to survive. But now we see that there were fish in a place with no water. This puzzling observed fact calls for an explanation. A best explanation starts by drawing an inference that there must have been water at one time in the location where the fish fossils were found. In the four horsemen case, the given facts are also puzzling, calling for an explanation. Why would one man be surrounded by four other men holding a canopy over his head? But an inference can be drawn. Only a very important person (like the governor) would have some mark of rank like a canopy sup-

ported by four horsemen. The conclusion is then drawn that the canopy man must be the governor. He might not be. But it is a good guess that he is.

A modern account of abductive inference has been given in the influential work of John and Susan Josephson. They, like Peirce, describe abduction as inference to the best explanation. An example of the use of abductive inference in everday reasoning cited by Josephson and Josephson (1994, 6) is the following dialogue.

Joe:	Why are you pulling into this filling station?
Tidmarsh:	Because the gas tank is nearly empty.
Joe:	What makes you think so?
Tidmarsh:	Because the gas gauge indicates nearly empty. Also, I have no reason to think that the gauge is broken, and it has been a long time since I filled the tank.

The argumentation in this dialogue fits the scheme called argument from sign (Chapter 2). Tidmarsh derives two alternative explanations for the given circumstances presented by the gas gauge. One explanation is that the gas in the tank is nearly empty. Another possible explanation is that gas gauge could be broken. But Tidmarsh remembers that it has been a long time since he filled the tank. Hence the best explanation is that the gas tank is nearly empty. This conclusion is plausible enough to warrant taking prudent action by looking for a gas station.

It may come as a surprise to some that recognition of a third kind of reasoning is not the newcomer on the scene that it may appear to be. Plausible reasoning was well recognized in the ancient world by leading philosophers. But then somehow it dropped largely out of sight in logic for two thousand years or so, until its recent revival in the computer field. How can this peculiar development be explained? And what are the lessons of it for logic as a subject?

Since the publication of Charles Hamblin's book on fallacies (1970), a minority among teachers of logic at the universities has begun to seriously study techniques of logical reasoning that are found in argumentation in everyday discourse. Although formal deductive logic has long been dominant in the curriculum, many are now coming to think that it has its limits, as a useful tool for analyzing arguments in natural language discourse. What appears to be equally, if not more important for teaching critical thinking skills that are really useful are the informal fallacies, and problems of identifying, analyzing, and clarifying arguments used in a text of discourse in a given case. Also, coping with understanding and evaluating longer arguments in a wider context of use is important. Many universities are now stressing these skills at an introductory level.

Although formal deductive logic (along with inductive logic) has a place in this curriculum, it seems more and more that inconclusive arguments that are presumptive and plausiblistic in nature, like argument from analogy, appeal to expert opinion, argument against the person, and so forth, have a much larger place. Such arguments are typically correct and successful enough to carry weight as evidence to justify a claim, even when they are neither deductively valid nor inductively strong.

At the same time, there has been a shift in computer science (in AI, especially), to working widely with defeasible arguments that are subject to default in exceptional cases, but that nevertheless carry weight as arguments. At the conference *Formal and Applied Practical Reasoning* held in Bonn in June 1996, and attended by two groups of researchers, working on artificial intelligence and argumentation theory, the term 'practical reasoning' was used to refer to everyday reasoning of the kind used in conversational exchanges in natural language (Gabbay and Ohlbach, 1996). However, what appears to be the same kind of reasoning is increasingly a concern of the agent-centered system of reasoning used in robotics, in medical and legal argumentation, and in other applications of AI. At any rate, there was a definite commonality of interest among these researchers in a kind of reasoning that is practical in nature and is different from the usual models of deductive and inductive reasoning that have been stressed so much in logic in the past. The AI researchers frequently associated this kind of reasoning with the use of abductive inference and with the kind of default reasoning often linked to nonmonotonic logics. It is now well recognized in multi-agent systems as a kind of reasoning used to steer a rational agent toward the realization of goals in a given situation. The reasoning is based on the agent's awareness of its external situation, and its awareness of the impact of its own actions on the situation, as far as that situation is known to the agent. Argumentation theorists see this kind of reasoning as being typically used in a dialogue exchange between two parties to tilt a balance, or burden of proof, from one side to the other on an issue where there has been a conflict of opinions that is the issue of the dialogue. It is applicable to cases in which there is an inconsistent set of data, and a supporting body of evidence on both sides of the case.

2. PLAUSIBILITY AND PROBABILITY

In the modern period, judging by the logic textbooks, the way logic was taught in the universities was characterized by a heavy dominance of deductive and inductive inference. Some informal considerations were retained (Hamblin

1970). There still tended to be a section on fallacies, and perhaps some other sections on matters outside these two primary domains. But there was no systematic way of treating plausible inferences that had any place of prominence in the leading textbooks. One exception was the popular textbook of Richard Whately (9th ed., 1870), a treatment that paid a great deal of attention to matters like presumption and burden of proof. But Whately's treatment of presumption was informal and practical in nature. He didn't try to develop a calculus, or formal structure of presumptive reasoning, that could take its place beside the established deductive and inductive systems.

The earliest serious and systematic attempt to give a structural account of a third type of reasoning distinct from deductive and inductive reasoning was that of Nicholas Rescher. In this small but significant treatise, Rescher gave a set of formal rules for a kind of reasoning he called plausible reasoning (1976, 15). The key rule states that in a plausible inference, the conclusion must have at least as great a plausibility value as the least plausible premise. According to Rescher, plausible inference is distinctively different in kind from probable inference (of the familiar kind, based on statistics), and cannot be reduced to probable inference (28–32). One key difference is the negation rule (15): it is possible that both a proposition and its negation can be highly plausible. In contrast, in the probability calculus, the probability value of a proposition *A* is calculated to be that of 1 *minus A*. The best way to understand the motivation behind Rescher's idea of plausible inference as being different from the basic ideas behind deductive and inductive inference is to see typical forms of inference used in each kind of reasoning. Consider the following three forms of inference, where *a* is an individual, *x* is a variable for individuals, and *F* and *G* are properties (represented by predicate letters).

Deductive Inference
For all *x*, if *x* is an *F* then *x* is a *G*.
a is an *F*.
Therefore, *a* is a *G*.

Inductive Inference
For most (or a certain proportion of *x*),
  if *x* is an *F* then *x* is a *G*.
a is an *F*.
Therefore, *a* is a *G*.

Plausible Inference
Normally, if *x* is an *F* then *x* is a *G*.
a is an *F*.
Therefore, *a* is a *G*.

It is characteristic of the deductive type of inference that if the premises are true then the conclusion must (by logical necessity) be true. It is characteristic of the inductive type of inference that if the premises are true, then the conclusion is probably true (probably, to a certain degree, expressed as a fraction between 1 and 0). It is characteristic of the plausible type of inference that if the premises are true, the conclusion is plausibly true. But a plausible inference is defeasible, because the generalization in the major premise is, by its nature, subject to exceptions that cannot be taken account of in advance. Plausible reasoning is nonmonotonic, meaning that it can be defeated by new incoming premises that have the effect of overturning the inference.

Plausibility is often thought to be the same as probability (in the sense in which this latter term is taken to be used by statisticians). But according to the account of plausibility given in Walton (1992c) the two ways of rating the strength of evidence are inherently different. The essential difference can be explained as follows. If you claim that a proposition is probably true, then there is burden of proof attached, because you have asserted that the proposition is (probably) true. Once you assert a proposition, you are obliged to back up your assertion with some appropriate proof or justification, if it is questioned or doubted by the person or audience you made the assertion to. But if you only claim that a proposition is plausibly true, there is no burden of proof attached. Instead the proposition is only set in place as a presumption that has been offered as a hypothesis, or provisional assumption, and the burden is on the respondent to give a reason for not making the presumption, if, for some reason, he does not want to accept it. So if you claim that a proposition is plausible, that is quite different from saying it is probable. The dialectical requirements for the reasonable acceptance of the two kinds of speech acts are quite different. Johnathan Cohen has also argued that there can be criteria of provability for the acceptance of a claim, as in legal arguments in a trial for example, that are not well modeled by the probability calculus. Cohen calls the probability calculus "the Pascalian calculus" (1977, 2), because its mathematical structure as a system of principles of inductive inference was laid out by Blaise Pascal, who, when he developed his theory of probability, "was much concerned about problems of legal proof." Since Pascal's time, there appears to be a prevalent presumption that not only scientific evidence, but also legal evidence as well, should be based on the principles of reasoning expressed in the probability calculus. But Cohen has shown that "if forensic proof in Anglo-American courts is analyzed in terms of the mathematical calculus of chance, the anomalies and paradoxes which are generated are too numerous and too serious for intellectual comfort" (2). This route of investigation had led Cohen (1992) to

an acceptance-based theory of legal proof that has rules of inference different from those used in the probability calculus.

Even so, many maintain that the logical structure of plausible reasoning can be reduced to some form of inductive (probability-based) reasoning. And this is not a claim we would care to rule out categorically. It remains to be seen whether the reduction can be carried out. However, I myself am quite skeptical about such claims, because I believe that the dialectical structure of the two types of reasoning is inherently different, in a way that makes the logic of each have its own special feature and methods. At any rate, to say something, like a proposition, is plausible, is roughly equivalent to saying that it appears to be true, but it could possibly be false. The idea of plausibility is that it puts a weight of support behind a proposition, which gives a basis for accepting that proposition tentatively, where there is a reason for choosing between accepting it or not, or between accepting or rejecting it. But the idea of plausibility does not require that there be some way of calculating the chances of whether this proposition is true or not. Plausibility is based on the practical idea that sometimes it is necessary—in order to go ahead with doing something that needs to be done—to definitely accept a particular proposition or to reject it. So one's acceptance (or rejection), in such a case, is based on the purpose of one's action, and how careful or cautious one needs to be. In many cases, of a kind we encounter every day, it is better to balance up the weights of what appears to be the case for and against the proposition's being true. Then by supposition, the best decision may be to go with a plausible hypothesis, even if it is just an intelligent guess, which could turn out to be wrong. So plausibility is based on what appears to be the case, and then making guesses on how to proceed, based on what one can tell (as far as one can tell) from those appearances.

Plausible reasoning evaluates propositions in relation to "the standing and solidity of their cognitive basis" by weighing available alternatives (Rescher 1976, 28). Rescher sees plausible reasoning as based on presumption: "A positive presumption always favors the most plausible contentions among the available alternatives" (55). A conclusion derived by plausible reasoning is accepted as a presumption, subject to future findings showing another alternative is more plausible. Rescher explains the difference between probability and plausibility by contrasting how each kind of reasoning works (30–31). Probability takes a set of exclusive and exhaustive alternative propositions and distributes a fixed amount (unity) across the set, based on the internal contents of each proposition. Plausibility does not assign weights on a basis of internal contents, but on a basis of the external support for each proposition being considered. As Josephson and Josephson have shown, plausibility is best measured by coarse scale

"confidence values" that seem to be good enough to decide actions, but are different from probability values (1994, 265–72); they cite, for example, how confidence values are useful in expert medical diagnoses (266). But they also show that, for such purposes, it has not proved useful to treat them as measures of statistical probability of the outcome (270).

According to the account given in Walton (1992c), plausible reasoning is different from either deductive or inductive reasoning. The former two types of reasoning have a positive burden of proof attached, whereas plausible reasoning is inherently presumptive in nature. If the premises are true, then they shift a weight of presumption toward acceptance of the conclusion as a reasonable presumption, as long as there is no evidence against it. So to have a plausible inference accepted, you do not have to give evidence to support it. Instead, you can ask to have it tentatively accepted as a working assumption, given that if evidence comes in against it, you may then have to give it up.

This idea, introduced by Rescher (1976), of having a third kind of reasoning was a striking departure for its time. Indeed, logic textbooks are still dominated by deductive and inductive reasoning, many of them implying by their treatment of the subject matter that these two types of inference are all that are important to know about in logic. Perhaps the prevailing idea in the past was that logic is an exact science, and the whole idea of dealing with presumptive inference that may turn out to be untenable was regarded as too sloppy, too indeterminate to be even considered as an acceptable kind of logical inference. But rules for plausible reasoning can be formulated. Rescher advocates the least plausible premise rule, which says that the conclusion should be at least as plausible as the least plausible premise. Luis Renon calls this rule a modification of the famous rule of Theophrastus: "The conclusion always follows by the weakest part" (1998, 112). According to this rule, the conclusion is brought up to the weight (or degree) of plausibility equal to that of the least plausible premise. Renon argues, however, that some passages in Aristotle would block this interpretation (212). I have argued (Walton 1992a) that the least plausible premise rule only works for some arguments—namely, those of the kind called *linked*, in informal logic, where the premises all function together to support the conclusion. In a linked argument, if you pull any one premise away, the plausibility value of the inference supporting the conclusion falls well below the value the argument would have with all the premises intact. That is the test of a linked argument. By contrast, in a convergent argument, if you pull one premise out, the remaining premises still support the conclusion without any significant drop in plausibility. The least plausibility rule works for linked arguments, but not for convergent arguments.

Linked and convergent arguments are two of the kinds of arguments central

to the technique of argument diagramming. A third type is the serial argument, in which the conclusion of one argument becomes a premise in a second argument. The outcome is a chaining of the two arguments, of the kind discussed by Bentham. The fourth type is the divergent argument, in which the same premise leads to two different conclusions that are drawn from it. When the four types of argument are combined together in a given case, the result can be an argument diagram, a kind of map of a network of complex argumentation used in a given case.

Even with linked arguments, there is a deeper explanation of how the evaluation of plausibility should work. This explanation relates to the probative function of argument. The main (although not the only) purpose of using an argument is for the proponent to address some proposition that is in doubt to the respondent, or that has been questioned by the respondent in a dialogue. The proponent's aim is to overcome that doubt by raising the plausibility value of that proposition higher than it now is, in order to get the respondent to come to accept it. So what the proponent needs to do, to fulfill this goal, is to find a set of propositions that are plausible enough for the respondent. When they form the premises of an inference that has the doubtful proposition as its conclusion, the plausibility of that conclusion will be raised up. The aim is to raise up the plausibility high enough so that the respondent will now accept the proposition, even though he formerly did not. This probative function idea explains how to evaluate the usefulness of an argument for the purpose of persuading the participant in dialogue to whom the argument should be directed. A good or useful argument is one that successfully carries out this probative function in a dialogue, by raising the plausibility of a conclusion in relation to a set of premises put forward to support that conclusion. Any argument that raises the plausibility of the conclusion beyond where it was before is useful in contributing probatively to the line of argument needed to prove the ultimate thesis that needs to be established in the dialogue. That is why, in a linked argument, each premise is needed. All the premises must go together so that the respondent is left no way out, no weak point where he can raise critical questions, and thereby get out of having to accept the conclusion. In linked arguments then, the least plausible premise rule has a role to play in judging the worth of an argument. In convergent arguments, however, a different principle of evaluation needs to be sought.

The idea that there is some important third kind of reasoning that is essentially different in kind from deductive and inductive structures of reasoning predominantly treated by the logic textbooks in the past has strongly come into its own only very recently. The question is then raised whether this idea is entirely new, or whether it has a history. The answer is that it has a long his-

tory. But it is peculiar history. It originated in the ancient world, and flourished there. But then it was plunged into virtual oblivion during more than twenty centuries of consistent neglect, existing in only in an undeveloped form (essentially its ancient form) on the fringes of logic. It never entirely disappeared from the logic textbooks, but stayed there, in its undeveloped form, wedged in between the "serious" topics. It was so overshadowed by deductive logic that, by the time of the twentieth century, its place in the logic curriculum had been marginalized.

This ancient idea was taken up by John Locke, and made central to his system of philosophy in his *Essay Concerning Human Understanding*. From there, the idea was taken up by Jeremy Bentham, and built in to Bentham's theory of legal evidence as the central component. Through these two philosophers, the idea came alive once again as the basis of the theory of evidence put forward by Wigmore (1940). So the idea did remain alive, but not in an area that was given much attention in the mainstream of logic or philosophy. Like all good ideas, it didn't disappear entirely. But it certainly disappeared from the leading enlightenment concepts that dominated western philosophy until recently. There was a reason for this disappearance, as will be shown below. It had to do with the powerful rise of science in the enlightenment, and the idea that only deductive and inductive reasoning could represent genuine reasoning of the kind that should command rational assent. The idea of case-based reasoning of a conjectural kind that requires a contextual balancing of factors in an individual case, and that cannot be scientifically verified and mathematically calculated in the way that deductive and statistical inference can, was rejected as "casuistry."

3. WIGMORE ON LOGICAL INFERENCE AND PROBATIVE VALUE

According to Wigmore there is a "science of proof" that has been "a subject of study for more than two thousand years, going back at least to the days of the Greek philosophers." But those thinkers who have studied the science of proof, according to Wigmore, "have rarely concerned themselves with the materials that are needed in litigation" (1935, 9). Therefore the science of proof, Wigmore tells us, must be modified for fact-finding use in the courtroom. In court, there are many special features that need to be taken into account, including limitations of time and place, the issue being one of human conduct, the tribunal dealing with data presented by parties to a dispute, the dramatic conditions of emotional disturbance present in the trial, and the use of a jury consisting of laypersons to decide the outcome (10). Because of all these special features of a trial, in legal argumentation, the science of proof must be supple-

mented by what Wigmore calls "the art of using the rules" (13). Hence, for Wigmore, although the rules of evidence are based on logic, or the science of proof, they are also based on other principles that are special to legal reasoning. Wigmore requires that all legal evidence must be based on "rational grounds of everyday logic" of a kind that applies to all reasoning in any subject (52). For Wigmore, it is this logical component that gives evidence what he calls its "probative value," or its capability to yield good reasons in support of the rational acceptability of a conclusion. But in court, not everything that has probative value is to be received as evidence. The law must have certain restrictions on what should be admissible as evidence. In viewing legal argumentation this way, Wigmore disagreed with Bentham who, as we have seen, took the view that any argument having probative value should be admissible as legal evidence. However, in many other respects, Wigmore's theory of evidence was built on Bentham's framework of legal argumentation.

Wigmore's theory of evidence is built on the idea of the chaining of inferences already found in Bentham. According to Wigmore's theory, there is a mass of evidence in any given case, and that mass of evidence is made up of a network of single inferences that are all chained together into the network. Wigmore explains how the single inferences combine into such a network of evidence using the diagram in Figure 4.1 (1940, 401). In this diagram, P represents the ultimate proposition to be proved in a case. T represents a "testimonial assertion," and C represents "a circumstance." Each individual inference is represented by an arrow. At the tail of the arrow is a set of premises made up of testimonial or circumstantial propositions (facts or assertions). At the head of each arrow is the conclusion drawn by an inference from those premises. The diagram reveals how such single inferences are chained together, in those instances where the conclusion of one inference becomes the premise in the next inference, producing a new conclusion, which can, in turn, become the premise for another inference.

The basic logical assumption behind the typical structure of reasoning in a legal case, as illustrated by Figure 4.1, is that, in judging the weight of evidence in a case, first of all we have to look at each single inference. Each premise set—that is, the set of propositions making up the premissary base of the inference—needs to be assigned a certain so-called "probative value." This idea of probative value, as we have seen, has already been well articulated by Bentham. This value represents the probability or likelihood that the proposition is true. But second, as in Bentham, the inference itself also has a relative probative value, expressing the probability that the conclusion is true, given that the premises are true. The two factors together will transfer a probative weight to the conclusion. In the case of each single inference, the premises, and the struc-

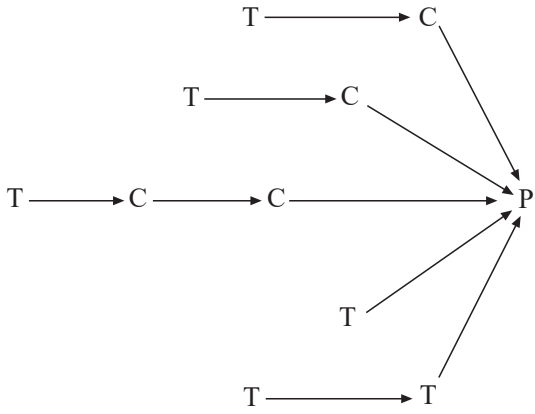


Fig. 4.1 Wigmore's diagram representing a typical mass of evidence

Wigmore uses P to represent the proposition to be proved (factum probandum). T represents a "testimonial assertion," and C represents a "circumstance." Describing the diagram above, Wigmore wrote, "the following chart will illustrate the analysis of a typical mass of evidence for any proposition whatever."

Source: John Henry Wigmore, *Evidence in Trials at Common Law*, vol. 1a, ed. Peter Tillers, Boston, Little, Brown and Company, 1983, p. 956.

ture of the inference itself, will have what could be called a "probative function" of increasing the probative weight of the conclusion, depending on two factors. One is how probable the premises are. The other is how strong the link is between the premises and the conclusion. According to Wigmore the process of thought by which we reason from evidence toward proof, which he called "inference," does not mean "complete persuasion" but "merely a sort of mental push toward proof" (1935, 53). The term "mental push" sounds psychological, but it can be explained in logical terms within Wigmore's theory of evidence by showing how the single inferences are chained together in such a way that they affect the final outcome of a case.

The question is: how does this probative function at the level of each single inference affect the probative value of the ultimate conclusion to be proved, P, in a given case? The answer is that each single inference is only a small part of the big picture. For example, if you look at the example sketched out in Figure

4.1, there are five arrowheads leading directly into the ultimate conclusion P. The chain of inferences leading into each of the arrowheads provides some evidence to support P. But no chain, presumably, is by itself sufficient to prove P. What might typically be the case is that while each of the five chains of evidence is, by itself, insufficient to prove P, all five chains of evidence taken together, are sufficient to prove P. In a typical case, it might be that each chain of evidence provides some support for P, but it is only when you put all five together as a whole body of evidence in a case that you get enough evidence to be sufficient to prove P.

An elaborate method of constructing a network of chained argumentation used in a legal case was worked out by Wigmore in his *Principles of Judicial Proof* (1913). This method is quite comparable generally to the technique now known in informal logic as argument diagramming. The diagram shows the large picture when many small or local arguments are connected together by lines so that the over-all direction of the whole argument in a case is laid out. The technique is quite simple in its basic outline, and could be described as a flow chart or directed graph of the argumentation used in a case. Arrows join premises to conclusions in local arguments, and then these local arguments are chained together, resulting in a global diagram of the argumentation used in the case. Used in a legal case, Wigmore compares the technique to strands of rope or cable, each of which by itself is weak, but when "woven together in sufficient numbers" make up a "medium of connection which cannot be broken." The purpose of such a logical diagram is to "determine rationally the net persuasive effect of a mixed mass of evidence" (1918, 747). Wigmore has an elaborate notation, which he calls a chart, for symbols, and list for their translation, worked out for representing different kinds of evidence in a case (751–55). Using these symbols, he constructs an elaborate diagram he calls an "evidence chart" to represent how each small piece of evidence in a court case fits together with each other small piece of evidence in a diagram that represents the totality of evidence in the case that was presented in the trial. In some cases, he breaks the diagram down into smaller subdiagrams representing a particular issue of the case. Notations are used to indicate which evidence was presented by the plaintiff and which was presented by the defendant. The actual details of these diagrams are not so important. What is interesting is that Wigmore would actually use such a diagram technique that resembles the modern technique of argumentation diagramming so closely in outline. It shows graphically how Wigmore approached the problem of the evaluation of legal evidence as used in a case. Each single probabilistic inference needs to be evaluated by chaining it together with all the related inferences in a given case, and then

each single inference, although individually weak, needs to be judged as a small piece in a larger picture. This larger picture is represented by the chained network of the argumentation in the whole case.

Now the question needs to be asked: what is the logical form of each of these single inferences represented by an arrow in Figure 4.1? Wigmore wrote that modern logic makes a distinction between "two great types of argument or proof—the deductive and the inductive forms" (1940, 415). The form of argument used in the offering of evidence in court is always inductive. He gives the example, "*a* planned to kill *b*; therefore *a* probably did kill *b*." Wigmore wrote that in this kind of argument, "it is clear that we have here no semblance of a syllogism" (416). He concludes that such an argument must be inductive, as opposed to deductive.

The official dogma of modern logic during Wigmore's time was that there are only two types of inference worth considering as representing structures of rational argument—deductive and inductive. The plausibilistic, or probabilistic type of inference in the ancient sense, was not recognized as being of any importance in its own right. Nevertheless Wigmore shows by the way he treats examples of legal argumentation, that they can be analyzed as fitting very nicely into this third category. For example, in commenting on the example in the paragraph above, Wigmore writes that the form of the inference can be represented as follows (1940, 417).

MAJOR PREMISE: Men's fixed designs are probably carried out.
MINOR PREMISE: *a* had a fixed design to kill *b*.
CONCLUSION: *a* probably carried out his design and killed *b*.

Put in terms of the patterns of plausibilistic inference outlined in Chapter 2, this inference can be seen as a use of practical reasoning applied as a inference to the best explanation of a given body of data. Suppose it is known, in the given case, that *b* was killed by somebody, and suppose there is also evidence that *a* had a goal of killing *b*, based on what is known about what *a* said, and how he acted. This pair of premises, taken together, shifts a probative weight toward the conclusion that *a* killed *b*. But the inference is a defeasible one. It is not sufficient, by itself, to prove that *a* killed *b*. And further evidence may even defeat the inference. As Wigmore puts the point (1940, 418), "there may be other explanations than the desired one for the fact taken as the basis of proof." The ultimate test for judging such an inference in a given case is: "is the desired conclusion a natural or plausible one among the various conceivable ones?" (419). Wigmore cites the example of Robinson Crusoe seeing human footprints in the sand, commenting that the presence of another human being could not

be "absolutely proved," because other explanations of the footprints are possible (419). Nevertheless a footprint does give some evidence for the hypothesis that there was another human being on the island. In the classification of types of plausible inferences given in Chapter 2, the argument in such a case would have the form of argument from sign. What is interesting in Wigmore's treatment of the example is that he clearly sees the structure of the inference as an argument from the best explanation of a given fact or piece of data. As such, he sees it as a plausibilistic kind of inference that gives some weight of evidence to support a hypothesis, but is potentially subject to defeat in a case by the introduction of new evidence in that case.

It might once have been assumed that the concept of argument from the best explanation was a twentieth century discovery, but Wigmore quoted a passage from Alfred Sidgwick's book *Fallacies* (1884), in which Sidgwick shows he is clearly aware of this idea. Sidgwick writes: "By the best explanation is meant . . . that solitary one out of all possible hypotheses which, while explaining all the facts already in view, is narrowed, limited, hedged, or qualified, sufficiently to guard in the best possible way against undiscovered exceptions" (quoted in Wigmore 1940, 418). Sidgwick, and following him, Wigmore, identified the kind of reasoning used to give probative weight to a conclusion with argument from the best explanation. Such reasoning works by selecting out the most likely explanation of a given fact from a set of alternatives. This kind of reasoning is precisely what has been identified above as "probable" or plausible reasoning in the ancient sense of Carneades.

Wigmore asks how the "evidential force" of one of these plausibilistic forms of inference be tested. His reply is that the conclusion drawn is the "best explanation" of what he calls "the evidential fact" (1935, 54). He gives the example of a man who died of convulsions after being bitten by a dog. The conclusion drawn is that "probably the dog had hydrophobia," or what we would now call rabies. According to Wigmore, "the strength (or weakness) of the offered inference depends upon the number and probability of other possible inferences from the same fact." The form of inference is that known in the recent literature on logic as "inference to the best explanation," sometimes also called abductive inference. Or, if they are not the same thing, they are closely related. Argument from the best explanation is sometimes also called presumptive or plausible inference. It is a kind of reasoning that sets up one hypothesis as a plausible conjecture or guess to explain a set of facts, but does not completely rule out other less plausible hypotheses.

Some other examples cited by Wigmore bring out very well just how this kind of inference works in typical legal cases. The first case cited here illustrates how a given finding in a case can function as a set of premises that lead to a

particular conclusion as a plausible hypothesis (1940, 410). When the premises are shown to be plausible as "facts," an inference is then drawn to a plausible conclusion based on these facts. The plausible nature of the inference is shown by its defeasibility.

> *Case 4.2* The fact that *a* before a robbery had no money, but after had a large sum, is offered to indicate that he by robbery became possessed of the large sum of money. There are several other possible explanations—the receipt of a legacy, the payment of a debt, the winning of a gambling game, and the like. Nevertheless, the desired explanation rises, among other explanations, to a fair degree of plausibility, and the evidence is received.

The inference in Case 4.2 is defeasible, because new evidence in the case could show that there was some other explanation for *a*'s coming into possession of the large sum of money. Still, in the absence of such counter-evidence, the inference does place some probative weight on the conclusion that *a* committed the robbery.

The next case shows how a certain proposition, though true, only throws a very small probative weight onto the conclusion at issue (Wigmore 1940, 420).

> *Case 4.3* The fact that *a*, charged with stealing a suit of clothes, was a poor man is offered to show him to be the thief. Now the conclusion of theft from the mere fact of poverty is, among the various possible conclusions, one of the least probable; for the conclusion that he would preferably work or beg or borrow are all equally or more probable, and the hypothesis of stealing, being also a dangerous one to adopt as the habitual construction to be put on poor men's conduct, has the double defect of being less probable and more hard upon the innocent. Such evidence, then, is seldom admitted to show that conclusion.

In this case, the fact that *a* is a poor man would give a small probative weight to support the conclusion that he stole the suit. The reason would be that since he was poor, he probably needed the suit, but could not afford to pay for it. But this inference only gives a small probative weight to support the conclusion. For it is quite plausible that *a* could be poor but honest—not the sort of person

who would resort to theft. Also, as Wigmore puts it, the general assumption that all poor people are thieves is dangerous, in the sense that it is "hard on the innocent" (1940, 420). For practical purposes, adopting such a general rule would be problematic in legal reasoning. It would tend to be prejudicial against poor people.

This kind of case turns out to be of major importance when admissibility and relevance of legal evidence come to be considered. What could be said about this case is that the inference only throws a very small probative weight onto the conclusion, but at the same time, there is a danger that if introduced as evidence in a trial, it might prejudice a jury against the accused. On balance, the danger of the prejudice seems to be greater than the small amount of evidence introduced by the inference from poverty to plausibility of theft. Therefore, one might argue that the kind of argument used in Case 4.3 should not generally be admissible as evidence in a court of law. Here then, we see the link in legal reasoning between probative weight and admissibility. In the end, we will see that in Wigmore's theory of evidence, and in the modern rules of evidence represented by the FRE, not only admissability but also relevance, are defined in terms of probative weight. We will also see that the notion of balancing off probative weight against the danger of prejudice in a case, is the basis behind the modern rules of relevance.

For the present, however, it is enough to see how Wigmore's theory of evidence is based on the fundamental building block of probative weight. So conceived, probative weight is a property not only of propositions, but also of inferences from a set of propositions that function as premises to another proposition that functions as a conclusion in a given case. These inferences are then chained together forming a network or argument structure in a given case, as indicated by Wigmore's Figure 4.1 above. In each single inference the premises may only give a small amount of evidence to support the conclusion. Nevertheless, although such individual arguments, by themselves, tend to weak and inconclusive, taken together, in the large body of evidence that makes up a case, they may be sufficient to prove the ultimate conclusion at issue in the case. Individually, such inferences tend to be weak, but collectively they may be strong. Perhaps that is why modern logic overlooked the value and probative worth of such arguments. Modern logic has tended to look at each single argument in abstraction from its context of use in a larger case. Individually, such plausibilistic argument may look weak, even prejudicial and fallacious. But when connected together in the context of a whole body of evidence in a case, they can have a legitimate function in shifting a burden of proof to one side or the other on a disputed issue.

4. LOCKE ON PLAUSIBILITY AND DEGREES OF ASSENT

A theory of probability and degrees of assent is presented in book 4, chapter 15, of Locke's *Essay Concerning Human Understanding* (1726). What Locke calls probability, or what would now be called plausibility, is defined through contrasting it with demonstration. Locke defines a demonstration as "the showing the agreement or disagreement of two ideas by the intervention of one or more proofs, which have a constant, immutable, and visible connection one with another." Probability (plausibility) is then defined as the appearance of such an agreement or disagreement where the connection is not constant and immutable but only "appears, for the most part to be so," according to Locke. Probability is "enough to induce the mind to judge the proposition to be true or false" (1726, 273). In other words, the theory of plausiblity is a theory of acceptance based on the judgment of an agent or a person who comes to accept some proposition as true or not true.

As an example of a demonstration, Locke presents a proof in geometry (274). In contrast with demonstration, arguments based on plausibility occur in cases where there is lack of knowledge and, hence, no basis in certainty on which we can say a proposition is true. Locke associates demonstration with knowledge, whereas he describes plausibility as being related to belief, assent, and opinion. Plausibility guides us where there is no certainty but only some inducements to accept a proposition as true (274–75). Locke describes plausibilistic judgment as being based on two grounds. The first is "the conformity of anything with our own knowledge, observation and experience" (275). The second is the testimony of others. Locke gives six factors on which judgments of testimony should be based: first, the number of witnesses; second, the integrity of the witnesses; third, the skill of the witnesses; fourth, "the design of the author, where it is a testimony out of a book cited"; fifth, the consistency and circumstances of a piece of testimony; and sixth, contrary testimonies .

To illustrate the first ground of plausibility, Locke gives an interesting example (275–76). In this case, one man tells another he saw someone in England, in the midst of a cold winter, walk upon water hardened with cold. Since this kind of event is normal in northern countries, nobody would be suspicious about it if such an incident were to be related to them. But then, Locke goes on to question what would happen if the same anecdote were told in the tropics where no-one had ever heard of such a thing as water freezing over with thick ice that people could walk on. Locke suggests that a person who heard such a story would not believe it because his whole experience had always been to the contrary, and therefore, he would not find the report plausible. Locke cites the story as happening to the Dutch ambassador, who was entertaining the king of

Siam and told him that the water in his country would sometimes, in cold weather, be so hard that men could walk on it, and that it would even be so firm that an elephant could walk on the surface if he were there. The king of Siam is said to be have replied that he believed all the other strange things that the ambassador told him, but that this story seemed so improbable that he had to conclude that the ambassador was lying. The story illustrates that normal experiences and customary observations that are relative to one's own regular circumstance are an important basis for probable judgments. In other words, inferences drawn on the basis of plausible reasoning are based on assumptions about kinds of events that are normal or typical in a person's experience. Locke's explanation of this point and his picking out the element of observation and experience as a ground for plausibilistic judgment shows that he is using the term 'probability' in the same sense in which the word 'plausibility' was used in the ancient world. It refers to an inference drawn on the basis of normal, commonplace expectations, and on the basis of what appears to be true. It is interesting to note that Locke cites one factor as being a very common basis upon which people draw conclusions using plausibilistic inference. This particular factor is described by Locke as "the opinion of others." Thus, it is clear that Locke sees not only appeal to testimony but also appeal to expert opinion and appeal to popular opinion as being kinds of arguments that are based on plausibilistic reasoning.

A most interesting principle of reasoning on the basis of plausibility in connection with testimony is cited by Locke. According to Locke, when an inference is drawn from testimony of a source, each remove that takes us further from the original source weakens the force of the proof. He gives the example of a credible witness who vouches for the truth of some proposition (283). Because the witness who is testifying is the same person who supposedly was a direct observer of the event in question, his testimony will be what Locke calls "a good proof." But then, Locke adds that if another equally credible witness makes claim to the truth of this proposition based on his hearing it from the first witness, then the testimony will be weaker. He goes on to add that any time you have a proposition inferred by hearsay of this kind several times, its plausibility will be weakened considerably. So, Locke formulates the general principle that each remove from the original source will weaken the argument from plausibility as a whole.

In chapter 17 of the *Essay*, Locke examines syllogistic reasoning, and evaluates how useful this kind of deductive inference is in plausibilistic argumentation. He comes to the conclusion that, although syllogistic reasoning is very useful in science and generally in dealing with claims based on knowledge, it is "far less, or no use at all" in plausible reasoning. When using reasoning based

on plasusibility, assent should be determined by "a due weighing of all the proofs, with all circumstances on both sides" (298). Locke feels that a sequence of deductive reasoning in a chain of syllogisms does not have the flexibility and freedom required to make it very useful in plausibilistic reasoning where considerations on both sides of an issue need to be taken into account.

5. BENTHAM ON PLAUSIBILITY AND EVIDENCE

Bentham's theory of evidence, which he presents in two volumes of his *Works* (Bentham 1962), is both lengthy and detailed. It is not easy to get a grasp of his central argument, but, fortunately, a clear and useful summary of Bentham's theory has been presented by William Twining. Bentham advocated what he called a natural system of evidence, which was characterized by "the absence of the artificial rules and technical devices of the technical system of procedure" (Twining 1985, 28). The core of this natural theory was Bentham's theory of probability, or probative force. It is clear that when Bentham used these terms, he refers to the same kind of plausible (probable) reasoning described by Locke. In Bentham's theory, there are two parts to what he calls the natural system. The first part is the establishing of the plausibility of a proposition, and the second part is the testing of that plausibility by a subsequent process of examining it. First part of the theory can be explained very simply. Suppose that a witness is testifying to the truth of a proposition in court, and suppose further that this witness states that he's very confident that his testimony is correct, and this proposition is true. Suppose, for example, that the witness's degree of confidence can be calculated at a degree of persuasion of eight. Then, using Bentham's theory, the probative force that should be assigned to the testimony, that is, the plausibility which should be assigned to the proposition vouched for by the witness, should also be calculated at a degree represented by the number eight.

In general, in Bentham's system of evaluating plausible argumentation, the degree of persuasion of the trier, that is, the judge or the jury, should correspond to the degree of persuasion of confidence of the witness (Twining 1985, 53). A big question is whether the probative force of a proposition in a particular case can be measured by expressing the degree of plausibility by some number or ratio of numbers in the way that we are familiar with in handling statistical data. Bentham appears to be of two minds about this. On the one hand, he does say that, on an individual occasion, the degree of strength at which a persuasion stands "would be capable of being expressed by numbers, in the same way as degrees of probability are expressed by mathematicians, viz.

by the ratio of one number to another." But then, Bentham goes on to add some qualifications. He adds that the nature of such a case "admits not of any such precision as that which would be given by employing different ratios . . . as expressive of so many uniform degrees of probative force" (1962, 7:64). His idea appears to be that indicators of the strength or weakness of the persuasiveness of a proposition can be given even in some kind of numerical form. Thus, comparatively, one could say that a particular proposition is highly plausible, or that another proposition is only slightly plausible. But Bentham seems to disagree that these numbers could be assigned in a way that would be consistent with the mathematical theory of probability. This part of Bentham's method of evaluating plausibility would appear to be quite consistent with the modern approach in artificial intelligence described by Josephson and Josephson (1994).

The second part of Bentham's method of evaluating probability is his system of securities for testing the trustworthiness of a proposition put forward as plausible. Twining describes this method as a system that "should help to prevent, detect and correct the dangers of incorrectness, mendacity, incompleteness and indistinctness of testimony" (1985, 54). The first test is whether the proposition, which has been put forward as plausible, conforms to the established course of nature as understood by the judge. For example, if the proposition is a commonplace event, to the effect that one person entered the house of another person, then someone's allegation that such a proposition was true would not conflict with general experience.

To take another example (Twining 1985, 54), however, suppose that the allegation of the witness was that his garden was damaged by the fall of an air balloon. This kind of event is highly unusual, and therefore, its failure to be a commonplace event in general experience would tend to detract from its plausibility. Another test for the plausibility of a proposition is whether the witness might have some interest for testifying in a certain way. For example, suppose the witness can be shown to have something to gain by advocating a particular proposition as true in the case. That would be grounds for being suspicious about the trustworthiness of the testimony. So here we have a test that can be used to detract from the plausibility of the initial proposition that was put forward by the witness. This test corresponds to what was called a critical question in Chapter 2. A third factor (Twining 1985, 54) is the internal consistency of the testimony of a witness. If the testimony put forward by the witness is inconsistent, that is, if one part of it contradicts some other part of it, then that would be grounds for treating the proposition as less probable, and weakening its probative force. In general, the evidence needs to be weighed together as a body. If there is one piece of evidence that goes against or somehow undermines or is inconsistent with another piece of evidence, then that could be a

factor in evaluating the plausibility of the whole evidence. In general (Twining 1985, 55), the degree of plausibility of a proposition can be calculated, according to Bentham, by the following formula. The outcome is a function of the initial probative force of the evidence supporting it minus the probative force of any of the contrary indicators which may have been introduced by the testing of the probability of the proposition in the subsequent analysis of it.

The final part of Bentham's theory of plausibility concerns the reasoning used to draw a conclusion from a proposition that was put forward as plausible—say by a witness who testifies to its truth. What is used, according to Bentham, is a chain of reasoning, and the links in the chain are inferences of the kind that Bentham classified as circumstantial evidence. The idea of the chaining together of a sequence of single inferences has long been fundamental to notions of argumentation that the Anglo-American concept of legal evidence is based on. We can see that already by having examined Bentham's analysis of circumstantial evidence, which involved a sequence of inferences called by Bentham a chain of facts. Bentham describes such a chain of facts as originating in a so-called principle fact that leads, by a series of links, to succeeding evidentiary facts drawn by inference from the principle fact and from the previous conclusions drawn in the sequence of inferences (1962, 7:2). Bentham then goes on to discuss cases where there is an evidentiary chain composed of a number of links (7:65). In a long footnote, Bentham first of all defines the notion of a chain of evidence, generally, and then distinguishes between two different types of chains of evidence. According to his definition, a chain of evidence is just a sequence of propositions linked together by inferences where the first proposition is some evidentiary fact which can be accepted as probable. Bentham gives the example of a case where a proposition *A* is evidentiary for a second proposition *B*, and then *B* is evidentiary for *C*, and *C* is evidentiary for *D*. So, in this kind of case, there is a sequence or chain of inferences starting out from the initial premise *A* to the ultimate conclusion *D*. Bentham calls such a sequence of inferences, where the first one is an initial proposition that has been accepted as evidence, a chain of evidence. But then, Bentham goes on to distinguish between two types of chains of evidence (7:65).

The first type, called the self-infirmative chain, is based on the principle that "the greater the number of such intermediate links, the less is the probative force of the evidentiary fact proved, with relation to the principle fact." The idea is that, with the self-infirmative chain, as the chain grows longer, the inference gives less of a basis of probability for accepting the ultimate conclusion in the chain because each individual link of inference in the chain is liable to have its counter-probabilities or to be overturned by suspicions or doubts. Therefore, as the chain gets longer, its capability of transmitting a probability to the

ultimate conclusion of the chain is weakened. As an example of the self-infirmative chain, Bentham cites a case that is very reminiscent of Locke's principle of evidence. "The more rounds a narrative has passed through, the less trustworthy it is universally understood to be" (7:65). Bentham sees a case like this as a self-infirmative chain because at each stage where the inference depends on the testimony of another witness, the possibilities of doubts, suspicions, or weaknesses in the inference occur. And the more links in the chain, then the more possibilities there are for going wrong.

The self-corroborative chain of evidence is best explained by the example given by Bentham himself (7:66):

> *Case 4.4* Let it be a question, for example, whether on a particular day Titius went from London to Portsmouth; and let it be out of doubt, that on that day at six in the morning he was seen on horseback at one of these places, to wit, London, and that by one witness it is proved that at six o'clock in the afternoon he was seen at Portsmouth. It is evident, that, the greater the number of intermediate places I can prove him to have been at, at correspondent hours, the stronger the persuasion I shall produce in the mind of the judge of the existence of the principal fact in question, viz. that of Titius's having gone that day from London to Portsmouth. The journey in question will thus be proved upon him by a chain of evidence composed of as many links (say six) as between those two places there are stages at which he was seen by so many different persons. Double the number of stages, and then of the witnesses; instead of six, call them twelve; you double the strength of the stream of evidence.

This kind of chain of reasoning has been identified in the literature on argumentation theory as the cumulative type of structure of argument where each small piece of evidence only gives a small weight of evidence to prove the ultimate conclusion. But, in the context of a given case, if you put a number of these small pieces of evidence together, there is a tendency for the evidence as a whole to have a cumulative build-up. At some point, once enough small pieces of evidence are gathered, the whole chain of reasoning gives quite a substantial reason for accepting the conclusion that is much greater than any of the individual units of evidence taken by itself. This notion of the cumulative chain of argumentation is quite familiar in modern argumentation theory.

The framework of plausible reasoning, and the methods for evaluation of

plausible inferences, are quite similar in Locke and Bentham, and fit together quite well to present a nice theory of plausiblity. The theory is remarkably similar to the accounts of plausible reasoning found in modern research on artificial intelligence. But why does this theory appear so isolated historically? It found its way into Wigmore's theory of evidence. But modern logic did not take up the theory. Did it have a prior history, before Locke and Bentham? The answer is that it did. The theory of plausibility was alive and well in casuistry. This theory, which became extremely unfashionable at the time of Pascal, can trace its roots back to the ancient world.

6. PLAUSIBILITY AND CASUISTRY

Many of the Greek ideas about plausible reasoning persisted into the writings of Roman writers like Cicero, but eventually Aristotle's theory of syllogistic reasoning came to dominate logic in the Middle Ages, and that dominance persisted into the Enlightenment, when science became the model of rational argument. Somehow, scientific reasoning came to be associated with deductive inference, of the kind typified by the syllogism, and this union of deductive inference with the idea of scientific objectivity came to be the dominant model of logical reasoning in the modern period.

With the Enlightenment came the rise of science, coordinate with the waning of dogmatic religion as a force in determining popular opinion. Scientific research became the model of all really serious thinking as a route to the truth. The philosophers came to think of themselves as scientists, or as using scientific methods of reasoning. In fact, many of the leading philosophers, like Descartes and Leibniz, were themselves distinguished scientists. Mathematical logic came to be thought of by the leading philosophers as the kind of reasoning that represents the method of philosophy.

At first, dialectic was retrofitted to make it seem more concrete, by the postulation of dialectical developments issuing out of clashes or oppositions between historical events. The obscure, abstract, and heavily metaphorical language used to discuss this kind of dialectical movement made philosophy completely inaccessible to the common person who was not an "intellectual." However, after a time, a growing body of influential philosophers criticized this idealistic type of philosophy as useless, on the grounds that its jargon-ridden pronouncements could not be "verified" or "falsified."

Having supposedly cast off its metaphysical excesses, philosophy then rallied around the flag of logical positivism, a view that took scientific research as the

paradigm of reasoning. Logic, very much in the same way it did in the high Middle Ages, took its business to consist in the fine tuning of abstract definitions and the drawing out of refined inferences from linguistic expressions. This technique made the logic appear to meet high standards of technical rigor. The image philosophers tried to portray of their activities was that of a carefully controlled scientific discipline policed by a logic with mathematical rigor.

The influence of Pascal was particularly significant. Pascal ridiculed casuistry as a subjective and biased attempt to reason about ethical matters and decide on what to do (Jonsen and Toulmin 1988). He took geometrical reasoning, of the kind exemplified by Euclidean geometry, as the only objective method of arriving at the real truth of a matter. And he put aside all other kinds of reasoning as subjective, as "matters of the heart." This Enlightenment approach took scientific reasoning as the only trustworthy route to the real objective truth of a matter, and relegated all else to the area of subjective passions. What could not be judged by objective probabilities was relegated by Pascal to "the subjective." The whole idea that nonscientists could reasonably deliberate on the truth of matters of importance, or could even use such everyday dialectical or plausible reasoning to question presuppositions of science, was dismissed. Of course, ordinary people who were not scientists and experts in fields of exact knowledge, could make up their minds based on what they accepted, but such reasoning was only based on their feelings, and could not have any objectivity as reasoning based on knowledge. Instead, these were just "matters of the heart." Plausible reasoning was not only dismissed as unscientific, but also as a technique of deception and sophistry used by the unscrupulous.

The term probabilism, as used historically, is most often associated with moral probabilism, a leading ethical doctrine during the era of high casuistry dated by Jonsen and Toulmin (1988, 164) as covering the century-long period of 1556–1656. It was derived from Cicero's method of weighing opposed arguments in cases by examining "probable reasons" on both sides. Cicero's method, which he used to evaluate legal as well as ethical reasoning in cases, was derived from the Aristotelian tradition of dialectic. This tradition saw moral deliberation as using a different kind of reasoning from scientific demonstration. Moral probabilism was the doctrine that the best certainty one could hope to achieve in moral deliberation was that of a fallible opinion that a conclusion is true. Fallible opinion was seen as based on acceptance, as opposed to knowledge or fixed belief. Jonsen and Toulmin define so-called probable certitude as "opinion, an assent to one proposition, coupled with the acknowledgment that its opposite might be true" (1988, 165). The big problem faced by high casuistry was to give a method for determining or calculating exactly when

probable certitude may be said to have been achieved in a given case of ethical or legal reasoning. On this point there were differences of opinion, and some of these opinions were the basis for Pascal's devastating critique of casuistry.

There was a medieval tradition of plausible reasoning arising from methods used by the theologians and legal consultants. They studied ethical cases of conscience open to moral doubts on both sides of an issue, and developed principles for arriving at probable (plausible) conclusions in such cases, even under conditions of ignorance. One of the most important of the principles was that of tutiorism. According to this principle, it is preferable to stick to the safer and better known way, given an ethical choice under conditions of uncertainty between two courses of action, both of which have probable justification, but where negative consequences, or even danger, is possible on both sides. This principle seems quite reasonable, and presumably it is often followed in cases of moral reasoning under uncertainty. It could perhaps be criticized, if for any reason, on grounds of being too conservative to apply to all cases, or on grounds of having a kind of conservative bias for safety over other values.

However, instead of sticking to traditional principles for calculating moral probability in particular cases like tutiorism, some of the influential casuists ventured more radical doctrines. One such doctrine, first stated by Bartolomeo Medina, a Dominican professor of theology, advocated the permissibility of choosing a less probable opinion over a more probable one: "It seems to me that, if an opinion is probable, it is licit to follow it, even though the opposite opinion is more probable" (quoted in Jonsen and Toulmin 1988, 164). Medina's thesis was accepted by casuists for almost a century afterward, and it was precisely this thesis that was the focus of Pascal's attack. It not only looks, on the surface, like Medina's principle goes against the central assumptions of probabilism, but it also looks like the principle could lead to counter-intuitive results in ethical judgements, and even be a source of mischief. Pascal satirized the principle by citing all kinds of ridiculous cases in which someone uses the principle to rationalize doing the wrong thing—a judge may accept a bribe in an inconclusive case, a monk may visit a brothel as long as he is not wearing his cassock. In all these cases, the apparently silly principle of Medina is used to support practices that were labelled as "laxism," or the escaping of moral obligations.

Unfortunately, Medina's principle had been stated in a way in which it seemed to be meant to be applied to a single moral agent who is trying to decide what to do when confronted by a choice between two courses of action. However, the principle was really meant to apply to more complicated kinds of cases in which two parties are involved, and one is giving advice to the other.

Jonsen and Toulmin explain how the principle was meant to be applied by using a modern example to illustrate it:

> Divested of its antique terminology, the thesis of probabilism simply asserts that a person who is deliberating about whether or not he is obliged by some moral, civil, or ecclesiastical law may take advantage of any reasonable doubt whether or not the law obliges him. To anyone used to the workings of the United States income tax code, this point is not unfamiliar. Given a ruling or professional advice favoring your right to a "deduction" or "exemption," you may take advantage of it even when it does not strike you as particularly sensible or reasonable. The advice or ruling can give your claim an "extrinsic probability" even in the absence of any obvious "intrinsic" merits. (1988, 166)

The kind of case cited here is quite a subtle one, and a difficult one to grasp clearly, let alone to solve. For example, suppose a woman has long argued in public debates that a certain income tax exemption that wealthy people can take advantage of is not a good tax law, and ought to be eliminated. But then suppose she actually takes advantage of this very loophole on her own tax return. What if someone were to criticize her, using the circumstantial type of *ad hominem* argument, "You don't practice what you preach." The critic would argue that the woman is being inconsistent, because on the one hand she is claiming that this tax ruling is bad, and ought to be eliminated, while on the other hand, she herself is taking advantage of the very tax ruling she condemns. Is the criticism a reasonable argument or not?

This case is quite a difficult one to analyze and resolve. It involves the type of argument traditionally known as the *argumentum ad hominem*. Traditionally, this kind of argument was said to be fallacious, but recent studies are indicating that the matter is not that simple, and that the *ad hominem* is often quite a reasonable, if inconclusive argument. In this case, for example, the woman could defend herself by arguing that, yes, as a law, which is binding on all citizens in her country, she is against this clause. But given that the clause is current law, and it applies to all citizens equally, she has the same right to take advantage of it as everyone else. Some will recognize this kind of case as similar to the case cited by Jonsen and Toulmin at the beginning of their book (1988, 1–5). In this case, Geraldine Ferraro, running for vice-president in 1984, stated that even though, as a Catholic, she was personally opposed to abortion, as a member of the Democratic Party, she believed that abortion should be a matter of choice in which women have the right to make their own decision. Did she

contradict herself or not? Casuistry, using Medina's principle, or something like it, would give a way of supporting the view, in both the income tax and the Ferraro cases, that there is a basis for responding to the allegation that the person in such a case is a hypocrite because she does not practice what she preaches or advocates as the rule that others should follow. The basic distinction that needs to be appealed to, in both cases, is between matters of personal conduct or conscience, and matters of rules that are binding on an individual as a member of a certain group. One needs to distinguish between moral obligations and legal obligations, for example, especially in cases where there can arise a conflict between matters of conscience and matters of law, or other kinds of rules that are binding on the individual in virtue of her belonging to a particular group. In politics, for example, such conflicts between individual conscience and party discipline are fairly common, and are matters for ethical deliberation of a kind that require a casuistical or individually case-based way of thinking.

Probabilism, as a way of assessing arguments in casuistry, was an extremely valuable methodological tool that could not only be applied to legal argumentation as well, but even to complex and difficult cases in which moral arguments and legal arguments are in conflict. Why then was such a valuable and promising logical tool abandoned in the Enlightenment, and even discredited so effectively by Pascal that its reputation was discredited and virtually destroyed right up until its rehabilitation by Jonsen and Toulmin's book? It seems that the reason is one of popular opinion and intellectual fads. Pascal's satire was so effective, no doubt largely because it was so amusing for the popular audience, that no account of moral or legal argumentation labelled as casuistical could ever have a hope of gaining intellectual respectability. However, the deeper reason was that Pascal, as an Enlightenment figure, had a program that held up scientific reasoning, in the form of the probability calculus, as the only kind of reasoning (possibly along with deductive logic) that merits any claim to be taken seriously as rational argumentation. With the rise of science, this program came to be accepted as not only the scientific but also the popular conventional wisdom. It is hardly surprising that probabilism virtually died out, and that the notion of seeing ethical and legal argumentation as probabilistic in nature simply had no place as a respectable view.

Thus the dialectical reasoning based on questioning commonly accepted opinions by a method of question and answer, of the kind depicted as the basis of plausible acceptance of opinions by Plato and Aristotle, was disparaged after the Greeks. First it was the dominance of organized religion, which emphasized dogmatic beliefs, and then the dominance of organized science, that put a premium on objectivity, that made philosophy of the old kind seem unfashionable,

or of no importance. In the medieval period, the philosophy of the Greeks was called "pagan," suggesting that insofar as it predated and was not based on Christianity, it was incorrect. In the modern period, the Greek type of plausible reasoning based on dialectical question and answer was dismissed as "subjective." The assumption was that such humanistic thinking may be harmless enough (except where it conflicts with science), but since it does not result in objective results or verified proof, of a kind that meets scientific standards, it is of little or no serious value as a way of discovering the truth of a matter. Although probing and questioning controversial issues by a Socratic discussion may have aesthetic, therapeutic, or cultural value, or even some educational value in helping people to be tolerant of others' views, it is not a method that yields objective proof of the way things really are in the world. If it clashes with the results of scientific research, it must always be presumed to be in the wrong. In fact, many would go further, and with approval cite the view that since a conclusion drawn by dialectical reasoning cannot be verified or falsified by empirical data, it is merely subjective. Therefore, one could argue, since the evidence is not reproducible, considering it is just a waste of time, and should have no real standing at all as sound reasoning that commands rational assent.

Such a highly negative view of plausible reasoning was quite consistent with the view that deductive logic (along with the help of inductive logic based on the accepted statistical methods) was all that really matters, from a logical point of view. When the deductive logic of propositional calculus, and with it the theory of quantifiers, was formally established as a well-developed mathematical theory in the early twentieth century, the idea of plausible reasoning as a serious part of logic was pushed even further into the background. At this point, the elimination of the ancient notion of plausible reasoning seemed complete. It will come as a surprise to many to see that plausible reasoning had quite a respectable heritage in the ancient world. It was accepted by Aristotle as an important and legitimate kind of reasoning. A theory of plausible reasoning was even developed by Greek skeptical philosophers that flourished well after the time of Plato and Aristotle. This theory has often been ignored, misinterpreted, or played down as being of no importance to logic. But in fact it is the root of the notion of plausible reasoning that found its way into the law of evidence from Locke and Bentham and through the theory of evidence developed by Wigmore.

7. PLAUSIBLE REASONING IN THE ANCIENT WORLD

The study of arguments and how to use and judge them (as a more or less organized discipline) began in the western world with the Greek philosophers.

They developed techniques of arguing in everyday discourse that could be used to raise critical questions about accepted ways of doing things, and even to persuade people to adopt different opinions. One of the most important tools used by the ancient philosophers was the argument from *eikos*, from plausibility, from what "seems likely." Traditionally, this type of argument has been translated as "argument from probability," a choice of words that, in light of the modern statistical meaning given to 'probability,' is more than a little misleading. Eikotic arguments contrast with modern-day statistical arguments, of the kind that are used for the collecting and processing of data by statisticians. Eikotic arguments are based on a person's subjective assessment of a situation that is of a type he is familiar with as normal or comprehensible in light of his personal experience. They seem alien to many modern persons, who have been trained to think of them as "subjective," and therefore of no importance as representing a kind of logical inference. But they were quite familiar to thinkers in the ancient world.

The concept of plausibility as a basis for acceptance was first formulated by the sophists, early Greek philosophers and rhetoricians who developed techniques of argumentation that could be used to persuade people to accept or reject different opinions. The kinds of arguments used by the sophists were based on *eikos*, from what "seems likely," and the strength of such arguments is based on plausible reasoning (*pithanon*, meaning plausibility, but traditionally translated as "probability"). According to A. A. Long (1974, 97), the Greek term Carneades used to distinguish between the probable and the nonprobable (translated into Latin by Cicero as *probabile*), literally means "persuasive" or "trustworthy." This notion of "probability" was not invented by Carneades, or taken directly from the sophists. It was known to mainstream Greek philosophy of the time. It was quite familiar to the Greek philosophers before Carneades, and played some role in their philosophical arguments. It was well known to both Plato and Aristotle, for example.

Eikotic arguments were long familiar to the sophists, but one particular form, the reverse eikotic argument, was identified by two sophists, Corax and Tisias, around the middle of the fifth century B.C. (Gagarin 1994, 50–51). Nothing survives of their writing, but the classic example of the reverse eikotic argument was attributed to Corax by Aristotle (*Rhetoric* 1402a17–1402a28). In a trial concerning a fight between a weak man and a strong man, the weak man, using the eikotic argument, asks the jury whether it appears likely to them he, a much smaller man, would have assaulted a much bigger and stronger man. The basis of the argument is that such an attack would not be prudent, and would likely have painful consequences, and the jury would know that the smaller man would know it. Hence with the question of which man attacked

the other hanging in the balance, the weight of plausibility would go against the hypothesis that the smaller man attacked the larger.

But to counter this plausible argument, the other man comes forward with a reverse eikotic argument. The strong man asks the jury whether it is plausible that he, a much stronger and larger man, would assault a smaller and weaker man, given that he knows how bad such an act would look when he appears in court. Since there would likely be bad consequences for him, following from such an act, and the jury knows that he knew it, is it plausible that he would initiate such an attack? This reverse eikotic argument restores the balance of plausibility back to equilibrium, taking the force out of the prior eikotic argument by the smaller man.

Admittedly, a subjective type of argument that is most useful when direct evidence is not decisive, and witness testimony is dubious or unavailable, eikotic argument can nevertheless be powerful if rational persuasion hangs on a balance, undecided by these other, normally more powerful kinds of evidence. One nice thing about the eikotic type of argument as evidence is that a person (in a jury, for example) can assess the evidence himself, based on his own judgment and personal experience, without having to take the word of witnesses or of technical experts who have collected the evidence and are then reporting it.

In the *Rhetorica Ad Alexandrum*, probability is defined as a property of what the hearer of an argument is already familiar with: "It is a probability when one's hearers have examples in their own minds of what is being said" (1428a25). The following examples are given: "For instance, if anyone were to say that he desires the glorification of his country, the prosperity of his friends, and the misfortunes of his foes, and the like, his statements taken together would appear probable; for each one of his hearers is himself conscious that he entertains such wishes on these and similar subjects" (1428a26–1428a32). This way of characterizing probability (*eikos*) is very interesting, because it proposes a hypothesis about how argument from probability works. Argument from probability is based on an appeal to things the hearer or audience of the argument already knows, or is familiar with, and they are things that the speaker can judge that the hearer will likely have a positive or negative attitude about, because he is likely to be the same as the speaker in these respects. So argument from probability is based on empathy, or an ability of the speaker to put herself in the mind of the hearer, because the speaker and the hearer will share certain attitudes in common. The remarks give us some insight into how argument from probability works, and in particular, they show us how the argument is based on things shared by the speaker and the hearer. We are shown, in other words, the essentially dialectical nature of argument from probability. It is a kind of argument based on a relationship between two participants in a dialogue

framework who share certain things, and one can guess what the other is likely to accept by a kind of empathetic projection into the mind of the other.

The sophists had discovered many interesting things about evidence and arguments, but they were open to the criticism they had not distinguished clearly enough between the normative (logical) aspect and the persuasive (psychological aspect). Even worse this lack of clarity opened them to the criticism that they taught their students to use arguments that were persuasive even if they were not logically correct. Socrates, as portrayed in the Platonic dialogues, made much of this criticism, and ever since, the term 'sophist' has come to mean a deceptive arguer who uses slick salesmanship instead of evidence.

Socrates not only went about doing philosophy by provoking young people to think and raise critical questions about ethical and intellectual issues, he developed a fairly well-defined method of carrying out this procedure. It was the elenchtic method—well described by Richard Robinson (1953)—the method consisting in posing a big question with two sides, and then using a sequence of smaller questions to direct a respondent in discussion to concessions that could be cast into doubt. Naturally, the use of this method in public began to upset some politically influential people who felt their positions threatened by it. They saw to it that Socrates was put into popular disrepute (by making allegations that he was "corrupting the young"), and then gotten rid of, using the justice system of the time as their instrument.

Socrates' student, Plato, recorded his master's activities in the form of dramatic dialogues, illustrating the use of the elenchtic technique. Socrates called his method of discussing an issue with a partner in argumentative conversation *dialectic*. The Platonic dialogues are literary creations, but they do portray the activity of dialectic, presumably along the lines Socrates actually used the technique in his disputations with his partners in arguments on many abstract issues that are brought to life in the dialogues in a revealing way. Socrates emphasized arguments that were nonconclusive in nature, and even the famous Socratic dictum that his only wisdom was in recognizing his limitations, expressed an acknowledgment that that plausibilistic reasoning and reasoned acceptance were the best one could hope for in a world where indisputable knowledge, on matters of any importance, is an ideal rather than a reality.

Unfortunately, Plato also had a mystical and abstract streak that played more and more an influence on his writings as he got older. Philosophy began to be portrayed in a very un-Socratic manner as a deep and very serious discipline that only the initiates could understand, and that ordinary people could not take part in. This streak put an emphasis on knowledge and belief, as opposed to reasoned (but defeasible) acceptance, that has persisted until the present day,

and found its strongest consolidation in the conventional wisdom of the enlightenment period.

This tendency to see dialectic in its highest forms as mystical and inaccessible was checked by Aristotle, who saw dialectical reasoning as based on commonly accepted opinions (*endoxa*). Aristotle defined dialectical reasoning in his early works on philosophical method (analytics) as a kind of reasoned discussion based on commonly accepted opinions, including those of the wise (the experts or specialists), that went on to challenge these opinions by finding contradictions and logical weaknesses in them. On the Aristotelian view dialectic had a role to play even in questioning the arguments and assumptions of scientists, and technical experts in a field of knowledge. Aristotle saw philosophical argument as best pursued using a dialectical method like that of Socrates, and he saw this type of argument as being distinctively different from scientific proof (which he called *apodeixis*, or demonstration).

According to Renon (1998, 95), *endoxos* is an equivocal term in Greek that can be used to apply to a person or city to say that it is "renowned," "illustrious," or "famous," but can also be used within argumentation to apply to views, tenets, or opinions, that have a certain weight or degree of approval. Aristotle uses the term in both senses, and even does so in the same sentence in his definition of *endoxos* in the *Topics*: "Those things are *endoxa* which seem so to everyone, or to the majority, or to the wise—and either to all of them, or to the majority, or to the most notable and reputable (*endoxois*) among them" (*Topica* 100b21–100b23). A good way of explaining the role of the endoxon in argumentation would be to characterize it as a proposition that is generally accepted in the context of a dispute, or at least which is not in doubt, so that it can be taken as a basis or premise for arguments without its coming immediately into question as being doubtful. So conceived, the notion of the endoxon is contextual. For what may be taken for granted without argument in the context of one dispute, may be very much at issue, and open to question, in the context of another dispute.

According to Renon (1998, 100), the Aristotelian concept of the endoxon can be equated, in modern argumentation theory, with "what we usually call 'plausible premises' in a context of informal argumentation in which the use of 'plausible' corresponds closely to the idea of what it would be reasonable to grant an interlocutor in a certain social setting of discussion." Such a premise can be described as a premise that "occupies a ground" in the context of a discussion or dispute on some issue. Hence it may be described as plausible, meaning that it seems to be true, to all parties to the dispute.

Such a plausible assumption or endoxon is something that may be taken for

granted, as not being in dispute, at least for the moment, so that, at least tentatively, all parties to the dispute can be presumed to accept it, or at least not to dispute it. It is not that anyone has proved it, or that it is beyond all possibility of being questioned or doubted. It is just that it is not realistically possible to dispute or question everything at the same time, without falling into a kind of skepticism that was highly familiar in ancient philosophy. So a dispute must have a certain focus—an issue that is being discussed. Any other proposition that is relevant, or that is connected to the issue of the dispute, will also be subject to questioning or argumentation by the one side or the other. But there will also be a lot of other propositions that are generally accepted, and that are not particularly contentious, as far as this particular dispute is concerned, or are even relevant to the issue, as far as has been shown yet. These propositions may be taken for granted, because they are generally accepted, and because, therefore, your opponent and yourself are probably quite likely to accept them. Moreover, anyone who did not accept such a proposition would have to put up an argument to overcome the weight of presumption of that general acceptance. And if the plausible proposition concerned is not even relevant, one way or the other, in the current dispute, it would just be too much of a useless digression to have to go into the whole problem of trying to collect evidence to prove or disprove it.

The *endoxon* relates to the traditional fallacy of the *argumentum ad populum*, or appeal to popular opinion. What the majority accepts can be wrong, of course, and often needs to be subjected to critical questioning and probing. Questioning popularly accepted opinions, of course, is precisely the function of Aristotelian dialectic. But still, popularly or generally accepted opinions can have a certain status in argumentation as *endoxa*, as plausible presumptions that carry a certain weight, or occupy a certain ground, in relation to a discussion of a controversial issue. They are premises that may tentatively be taken for granted as plausible, and may thus be used in an inference to bestow a weight of acceptance on a conclusion following from such a set of plausible premises.

8. CARNEADES' THEORY OF PLAUSIBILITY

This conception of plausible reasoning as the best kind of argumentation that we can aspire to as human beings was taken over and developed by the later Platonic academies. The head of the third Platonic Academy, Carneades (c.213–c.128 B.C.), according to the account given in the *Outlines of Pyrrhonism* of Sextus Empiricus, a Greek author of the second century A.D. (trans. Mates 1996, 122), based a theory of plausibility on the so-called *phantasiai* (impres-

sions or appearances), that are presented to a human subject when she experiences something.[2] According to the theory of Carneades, something is plausible if it appears to be true, or (is even more plausible) if it appears to be true and is consistent with other things that appear to be true, or it is even more plausible if it is stable (consistent with other things that appear to be true), and is tested. Everything we accept or should accept, as reasonably based on evidence, is subject to doubt and is plausible only, as opposed to being known (beyond all reasonable doubt) to be true, according to Carneades.

Carneades' method has traditionally been called his "theory of probability," implying, to modern ears, that it is some kind of theory of what is now called the science of probability and statistics, a branch of mathematics. However, Carneades' theory doesn't look anything like the modern probability calculus. But because of the use of the term 'probability,' the inference would likely be drawn by someone in the twentieth century that it is an outdated, ancient theory that was simply wide of the mark. Like so many ancient theories, like the view that the sun revolves around the earth, it might be thought that Carneades' theory is simply wrong, and is no more than a historical curio. But this view of the theory is quite wrong. What Carneades meant by 'probability,' or the Greek word he used that was so translated, is something altogether different from the modern mathematical and statistical notion (even though, even more confusingly, the two things are related).

A better way to see Carneades and his theory in historical perspective is as a pragmatic philosopher who was a forerunner of the American pragmatic school of thought represented by Charles S. Peirce and William James (Doty 1986). Like Peirce and James, Carneades can be seen as trying to develop a practical

2. Little is known about Carneades' life, and he left no writings (Zeller 1892, 537). According to Diogenes Laertius, other than some letters he wrote, "Everything else was compiled by his pupils; he himself left nothing in writing" (DL IV:65). What we know of his arguments stems from what was recorded and propounded by his students, of whom the most notable was one Clitomachus, who came from Carthage, and whose name was originally said to have been Hasdrubal (DL IV, 67). Cicero (AC II.31) writes that Clitomachus was a companion of Carneades until quite old age, and was very studious and industrious. According to A. A. Long (1974, 95), Clitomachus was Carneades' "close and devoted associate" and is "probably the ultimate source of the most detailed evidence" on Carneades' views. Cicero often refers to volumes written by Clitomachus, which appear to have been important sources of his knowlege about the teachings of the School of Carneades. But the writings of Clitomachus are no longer extant, and the evidence we have about the arguments of Carneades comes from the representations of the views of his school in secondary sources (especially in the writings of Cicero and Sextus Empiricus).

Despite the lack of primary sources, the philosophical arguments said to be those of the School of Carneades hang together quite well, and do have quite a distinctive impact as a philosophical position. Although Carneades was important for his dialectical attacks on the views of previous philosophical schools, his views were not purely negative. His central analytical theory represents a kind of logical method for the reasoned acceptance of judgments or actions.

philosophy, and as reacting against the prevailing schools of thought at the time, that had become highly theoretical and abstract. Like the American pragmatists, Carneades developed his theory in opposition to the established opinion of the time that truth is a property that exists independently of the way that a thinker or perceiver holds or justifies holding a view of it. Philosophy in the ancient world was not just an abstract theorizing, but a way of life, and Carneades' theory was a way of overcoming suspension of judgment that was meant to be compatible with normal human action (Bett 1990, 3). Carneades noticed that persons in daily life use several criteria to judge what they take to be true or false, and he also observed that these criteria were fallible and subject to correction in some instances. In the same way, Peirce developed his theory of abductive inference based on the way an ordinary person or a scientist actually tries to explain given data of perceptual experience. Both thinkers were driven by the contradictions among all the theories of truth of the various academic philosophers to retreat to some practical notion of acceptance. According to this practical approach, what can be taken to be true should be based on how we ordinarily go about deciding what to accept as plausible or probable in everyday reasoning. Looking at Carneades' theory in this way, it can be seen as an early form of pragmatism.

According to the skeptical school of thought of Pyrrho of Elis, which flourished in the fourth century B.C., the various dogmatic philosophies contradicted each other, and it is impossible for anyone to come to any conclusive proof that one is right and the others are wrong. The solution to this difficult problem advocated by the skeptics was called "suspension of judgment." The Pyrrhonean skeptics represented an evolution in the field of philosophy. They saw that various philosophies could be developed, and each of them had good arguments to support its claims. But this plurality of available views leaves the individual questing after a philosophy to make ethical decisions in her life in a quandary. For each philosophy has good arguments to support itself. But none of them could be proved to be true, or to be the most acceptable view. The outcome for the questing individual is doubt and agony. Since no one view can be proved beyond doubt to be the best, or the true opinion, one is ensnared in the difficult business of evaluating the reasoning for and against each view. Then one can never go ahead with developing a philosophy that can be accepted and used to help one through all the difficult ethical problems one has to face in life.

The solution advocated by the Pyrrhonean skeptic was to suspend judgment on all these views, resulting in a moral tranquillity that is a preferred attitude to the constant bother of arguing for this disputable philosophical view, as against that other one. We don't have any writings of Pyrrho, but an account

of his theory is given in the *Outlines of Pyrrhonism*, written by Sextus Empiricus (1933a). According to Sextus, the Pyrrhonian skepticism was based on a concept called *equipollence*, which meant equality with respect to probability or improbability, so that no one of the conflicting judgments takes precedence over any other as being more probable (*Outlines of Pyrrhonism*, i.1–10). What this principle of equipollence really means needs some explanation, because the word 'probable' does not have the modern meaning of probability, of the kind we are now so familiar with in statistics. It means something more like 'plausible,' in the sense of appearing to be true. A plausible proposition in this sense is one that is acceptable provisionally, as a hypothesis, because it appears to be true, and there is no reason to think that it is false. The meaning of this idea of plausibility was fundamental to Greek philosophy, but has been lost in modern times. It is an idea that goes back to the sophists.

9. CRITERIA AND APPLICATIONS OF CARNEADES' THEORY

In *Against The Logicians*, Sextus Empiricus, after giving an account of the arguments used by Carneades to throw doubts on the attempts of the previous philosophers to solve the problem of the criterion, sets out the positive criterion Carneades proposed as a solution to the problem. According to this theory, when a subject experiences a "presentation" (something that appears to him), one kind of presentation is "apparently true" and naturally convincing, while another kind of presentation is "apparently false" (AL, 168–70). Of the apparently true kind, some presentations are confused and indistinct—for example, due to the smallness of the object or the weakness of the sense of sight (171–72). The criterion, according to the School of Carneades, Sextus tells us, is the kind of presentation that is apparently true. Sextus adds that this criterion includes a large number of presentations (173). The basis of Carneades' test for the acceptability of a proposition is that it represents a presentation to a subject that is apparently true to that subject.

The key to understanding Carneades criterion is that the subject does not need to be always right. Some false propositions will be included among those that are accepted on the basis of being apparently true. What is important is that these propositions should be accepted as tentatively true, on the assumption that a proposition that is based on an apparent and convincing presentation is normally true. Carneades is still a sort of skeptic, in that he thinks there is no perfectly reliable way to determine, beyond doubt, that a proposition is true in the sense that it accurately reports what it seems to report. We can always be mistaken, and sometimes we are in fact mistaken. But nevertheless, if a

proposition is based on a presentation that is apparently true, then that proposition should, for practical purposes, be accepted as true, subject to further incoming presentations or other evidence that might come to be available in the future, that would show that it is false. So this set of apparently true presentations furnishes us with a basis for accepting propositions as true, even though it is not an infallible basis.

In the meaning of the word used by the School of Carneades, according to Sextus (AL 174–75), 'probability' (*pithanon*) has three senses: (1) that which both is and appears true, (2) that which is really false but appears true, and (3) that which is both true and false. The basic criterion of Carneades will include all three of these kinds of probable propositions. As Sextus puts it, sometimes we accept a presentation that appears true but is really false, so "we are compelled at times to make use of the presentation which is at once both true and false." But occurrences of this kind should not make us distrust what we accept "as a general rule" as reporting truly (175). Sextus's account of the criterion of acceptance of Carneades makes it clear that acceptance is seen as tentative—as having a presumptive nature relating to the kind of inference sometimes called the argument from ignorance, or lack-of-evidence inference. If one has no evidence that a proposition is false, but one has evidence that the proposition is apparently true, or seems to be true based on some convincing appearance, then it is wise to tentatively accept it as true, as a basis for action and judgment, in many instances.

The qualification "in many instances" is important here, because acceptance should always be seen as contextual, and as dependent on matters of burden of proof. In any real case, especially where there is controversy, or much hangs on a decision on how to act, there will be many sources of evidence both for and against accepting a proposition. Acceptance of any proposition depends on the total evidential picture. So the true appearance is just one factor in a larger body of evidence that might influence one's acceptance of a proposition in any real or complex case. Sextus makes this point clearly when he writes, "no presentation is ever simple in form but, like links in a chain, one hangs from another" (AL 176). Sextus goes on to add Carneades' second criterion.

The second criterion is a presentation that is both probable in the first sense, and is also "irreversible," meaning that it fits in with other presentations that also appear true (AL 176). Sextus cites a medical example: a physician will conclude that a man has fever not just from one symptom, like rapid pulse to high temperature. He will base judgment on a concurrence of other symptoms as well, like soreness of touch or thirst (179–80). This kind of plausible reasoning has been called the evidence-accumulating type of linked argument, where each factor gives a small boost of plausibility to a conclusion, but where all the small

increments of evidence build up so that together, they make the conclusion quite a bit more plausible (Walton 1996a, 130–33). Sextus, citing the example of accepting that a particular man is Socrates, writes that we believe it because we see that he has all the customary qualities of Socrates—his color, shape, usual coat, and so forth (AL 178–79). In such a case, the belief is acceptable because "none of the presentations disturbs our faith by appearing false," and "all with one accord appear true." So this coherence with other presentations that also appear true is the second criterion of the School of Carneades.

The third criterion involves the "tested" presentation (AL 182–83). Sextus gives an example: "When we are investigating a small matter we question a single witness, but in a greater matter several, and when the matter investigated is still more important we cross-question each of the witnesses on the testimony of the others" (184). This example is taken by Sextus to illustrate how all three of the criteria of the School of Carneades work together (185). In a trivial matter only the first criterion of probable presentation would be needed. But in a more important matter, the question of how that presentation fits in with other probable presentations would be taken into account. Finally, in an even more serious matter, the testing of a proposition would be taken into account (185–87). Sextus gives the classic example of the rope (188). A man sees a coil of rope in a dimly lit room, and assuming it to possibly be a snake, he jumps over it. But turning back afterward and seeing it does not move, he inclines toward the view that it might not be a snake. At this point then, he accepts the proposition that the object is a rope, on the grounds that it initially looked like rope, and that its failure to move also indicates that it is probably a rope. But then, reasoning that snakes are sometime motionless, he carries out the test of prodding it with a stick. Let's say that it still does not move. Then the test would indicate that it is probably a rope, and not a snake. In such a case then, the hypothesis that the item seen is a rope, and not a snake, is rendered probable by having met all three criteria.

In his discussion of Carneades' theory of probability, Cicero, telling us that he takes these ideas from a volume written by Clitomachus, outlines some main features of the theory (AC II.31). First, he tells us that not all of the presentations we have in everyday life can be judged to be probable, but many of them can. For, he writes, it is "contrary to nature" (*contra naturam*) for nothing at all to be probable, in a way that would subvert ordinary life. Cicero concludes that the "wise man will make use of whatever apparently probable presentation he encounters" (II.99). These comments make clear that the theory of probability is meant to be a kind of guide on how to reason in practical affairs in everyday life. Or at any rate, it is meant to be based on how a wise or prudent person would make judgments in affairs of everyday life. Cicero gives the example of

the wise man who gets on board a ship, judging that this action will be a way of getting to his destination (II.100). He does not know this for certain. An unexpected storm could interfere. But if the weather appears calm, if the crew is good, if the distance is not too far, and so forth, then the wise man will be guided by these presentations to adopt an appropriate plan of action or inaction.

These remarks make it clear that the Carneadean theory of probability is meant to apply to practical reasoning of the kind used in everyday deliberations on how to carry out actions based on one's goals. The wise man, or prudent person, will act on assumptions based on presentations that appear to be true, based on the total picture of the evidence in a given situation. The wise man, however, is not dogmatic. He will change his opinions and actions in deliberations, if the situation changes, or if new presentations come into the picture. For example, to extend the case cited by Cicero, suppose that all the presentations look favorable for the voyage, but then just as the ship is boarded, dark clouds appear on the horizon. If the prudent person judges these clouds to be a sign of danger, indicating a strong probability that the voyage would not be successful, he would change his mind, and get off the boat, and wait for better weather. So the prudent person, on the basis of the theory of probability, should be open to new probable evidence, and not be dogmatic about drawing a conclusion.

Another application of the theory of probability that is indicated by remarks of Cicero (AC II.3) is to philosophical discussion, or reasoned dialogue generally where the purpose is to judge which is the better supported of two contrary opinions, each of which may be arguably probable. Cicero has some insightful remarks to make about this use of probability, said to be based on the Academic system of philosophy—that is, the system of the Third Academy, or School of Carneades. Cicero begins with a sketch of the history of the earlier skeptical views in philosophy. He writes that "ancient and learned thinkers" had many difficulties in their search for knowledge, and found that the lack of certainty in establishing any firm conclusions led them to distrust their ability to discover what they wanted to find (II.3.7). But they did not give up, Cicero writes, and we who are now engaging in such philosophical pursuits should not give up either. What we need to recognize, according to Cicero, is that such philosophical investigations only give probability, and not certainty. However, in the view advocated by Cicero, which would appear to be that of the Third Academy, the fact the conclusion of a philosophical investigation is only supported on a basis of probability, should not lead us to think that the reasoning it is based on is worthless or is not useful in the search for the truth of a matter. Cicero writes

that by having a discussion that looks at the probable arguments on both sides of a contested issue, we can get closer to the truth. By arguing "on both sides," we can "draw out and give shape to some result that may be either true or the nearest possible approximation to the truth" (II.3.8). This passage in Cicero is very interesting, because it suggests a particular view of the kind of argumentation typically used in philosophical discussions and investigations. According to this view, such argumentation should not be dismissed as worthless, or a waste of time, because it does not result in a conclusion that is known with certainty. But what good is a philosophical discussion, a critic might say, if it does not lead to the truth of the matter being discussed? Unless a conclusion can be established with certainty, or beyond doubt, what claim does it have to being put forward as the truth? And if philosophical discussions do not discover the truth, what good are they?

The School of Carneades has an answer to these pointed questions. The answer is that a philosophical discussion can lead toward the truth, or approximate the truth, even if it does not establish the truth with certainty. The reason is that it "gives shape" to a conclusion by making it probable, even though an opposed view could also be probable as well. Of course, this view will seem unsatisfying to many, because they want to fix onto one view they think is the truth. Cicero says that such people will come under the guidance of some friend or teacher, and will "cling as to a rock" to this view, which they see as having come from a wise man who commands their absolute trust. But Cicero also writes that such an attitude is one of obstinacy, where the person surrenders himself to the teachings of a single master, thinking that somehow the views of all the other schools are wrong (AC II.3.8–9).

The difference between the dogmatic philosopher and the philosopher who holds to the theory of probable reasoning is not in the discussion they might have, or the conclusions they draw from it. The difference lies in their attitude toward those conclusions. The one has no doubts that his tenets are true (AC II.3.8). The other holds that many doctrines are probable, but should not be advanced as certain. But even so, a probable conclusion can be highly significant. It can be a reason for accepting a view, and it can be a guide to deliberations in everyday practical affairs.

Cicero's application of the Greek theory of probability shows what the Greeks meant by acceptance of a proposition on the basis of plausibility (probability). Once this idea can be grasped, it throws much light on the Pyrrhonean principles of equipollence. This principle means that for any pair (or set) of conflicting opinions on a matter of philosophical controversy, no one will be any more plausible than any other. This principle is well known to anyone who

follows developments in philosophy in the late twentieth century. It is, in fact, the basic tenet of postmodernism, a philosophy that has been popular and influential in the universities (particularly in the literary fields and social sciences).

The same kind of dialectical cycle is occurring now that occurred in the history of Greek philosophy. First, there was a dogmatic period where various views were advanced and accepted. First there was dogmatic acceptance of religion, but then it was questioned. Then there was a prevailing acceptance of the view that scientific evidence was all that could really be proved. But then as the mass of people began to see the problems caused by scientific developments, and the inability of scientific reasoning to solve these problems, cracks in the accepted view that science is the sole criterion of truth of opinions began to appear. Subsequent generations were confronted with a set of opinions, or schools of thought that contradicted each other. They couldn't all be true. The result was a climate of opinion of relativism in which people take the view, "Well, it's all relative—you can argue this way or that, but no view can really be proved beyond doubt." The climate of opinion is one of upheaval, and not only a loss of respect for traditional views and values, but also a general feeling there is no such thing as rationality, and that you can accept whatever view supports your own interests or personal feelings. The view is that science, philosophy, or any organized academic activity of these kinds, are just ways that established groups use to impose their ways of thinking and values on others, to make a profit, and to secure power for their own interests. The view is that science, philosophy, and comparable organized activities just represent opinions that are no better or worse than anyone's individual opinions about what they feel is right. All such opinions are equally plausible, and none is better than any other.

10. WHY THE NEGLECT OF PLAUSIBLE REASONING?

It is an assumption of this book that an applied logic is to be developed that can be used to evaluate the kinds of arguments commonly used in everyday conversational disputations. The intended domains of application include legal disputations, political rhetoric, and all kinds of contexts of use of arguments that are important kinds of discourse for applying skills of critical thinking. If this assumption is correct, then plausible reasoning should take its place alongside deductive and inductive reasoning in the logic curriculum. But given that the idea of plausible reasoning was so well recognized in the ancient world, how was it that logic came to exclude serious consideration of it as an important type of reasoning for so long? Aristotle's early analytic method (logic), developed in the *Topics*, was a kind of applied logic, built around the idea of plausible

reasoning in its various forms (the so-called topics). Why was it that these early methods were never really further developed as an important and systematic branch of logic, while his syllogistic logic dominated logic and showed the way to the modern developments in mathematical logic? Why has the idea of an applied logic never really caught on, or been taken seriously as a systematic domain of knowledge and research in its own right? Why was it that the notion of plausible reasoning receded so far into the background after the collapse of the ancient world, and remained in obscurity right up until the 1970s when finally a systematic study of this kind of reasoning was undertaken? In the history of Indian logic, as shown in Hamblin's chapter, "The Indian Tradition" (*Fallacies* [1970], chap. 5), the notion of plausible reasoning was central. The stock example in Indian logic, 'The hill is smoky, therefore the hill is fiery' (1970, 178) is as good an example of plausible reasoning as anyone might like. But such an idea of plausible inference never had much of an impact on the mainstream of Western logical thinking, where deductive logic was always so central. Looking over the history of logic from the ancient world to its present state, the progress of the subject is hard to explain. The two big spikes are Aristotle's logic, and the advent of mathematical logic around the beginning of the twentieth century. For much of the time, the subject seemed to be quiescent, and work proceeded mainly on developing fine details of the accepted system. And through the whole history of the subject (at least, after the Greeks), deductive logic eclipsed any serious concern with, or even acknowledgement of, plausible reasoning.

Plausible reasoning has often been scorned by philosophers and scientists, as not precise enough to fit scientific standards of rational thinking, and as no kind of reasoning at all that leads to the truth of a matter. Although plausibility was known as an important notion, and a basis for a common and important kind of reasoning in the ancient world, it came under severe attack during the Enlightenment period, most notably by Pascal, who attacked the idea vigorously, and quite successfully. As chronicled by Jonsen and Toulmin (1988), the idea of probability (plausibility) that was the basis of casuistry—case study reasoning in ethics—was ridiculed, and widely rejected in Western thinking. But Pascal and other leading Enlightenment figures distorted and debased the idea of plausibility, because they saw deductive and probabilistic (in the sense of statistical) reasoning as the only objective model for the kind of reasoning used in science. The idea that there could be some kind of reasoning of a practical sort, that represents a kind of rational thinking outside scientific rationality, was not acceptable to those who saw scientific reasoning as the only standard of rationality worth paying serious attention to. Such a kind of thinking was classified as subjective, whereas scientific reasoning was classified as objective.

The very word 'probability' came to mean something quite different from its old meaning—it was redefined as an objective calculation of statistical likelihood along Pascalian lines.

The longstanding denigration of plausibility is finally coming to an end. Plausible reasoning has become a dominant preoccupation of many researchers in the field of artificial intelligence now to study defeasible (nonmonotonic) reasoning as a distinctive kind of reasoning that has its own forms of inference and requirements, separately from deductive and inductive logic (Josephson and Josephson 1994). According to Rescher's system (1976), a plausible inference is one based on a generalization about what can normally or typically be expected to occur. So it is not an absolute universal generalization of the kind typically postulated in deductive logic (both in the syllogistic theory and the modern quantificational theories). Rescher calls the defeasible type of implication relation based on this kind of generalization the "provisoed assertion" relation (1977, 7). Rescher has presented a systematic formal structure for plausible reasoning in which probative weights can be attached to propositions, and then modified in plausible reasoning. In the end, however, the evaluation of plausible reasoning is not context-free, like the evaluation of deductive and inductive reasoning.

How could this system of plausible inference be justified, or put into a broader framework of use, so that it could be shown to be appropriate as a method of evaluating reasoning? Rescher presents a system of dialectic (1977) where a dialogue framework of plausible reasoning is used. Rescher sees plausible reasoning as being used in a dialogue framework in which two parties reason together. One, called the *proponent*, has the goal of fulfilling a burden of proof by using plausible reasoning to prove a particular proposition designated as her thesis (1977, 4). The other party, called the *opponent* (or *respondent*) has the goal of raising doubts that show that the proponent's goal has not been achieved. The two parties take turns making question-reply moves in a sequence determined by the dialogue rules. This framework of use brings in a dialectical dimension to the evaluation of how the arguments are being used for some purpose, as will be shown in Chapter 5.

Why, you might ask, did logic develop as a field in such an odd way? Why was plausibilistic reasoning ignored for so long? There could be a number of explanations for the peculiar way that logic has developed as a field. Among any such explanations however, the following factors would have to play some role.

1. *Fear of logic being abused (sophistry, casuistry).* The fear that sophists will use clever but misguided logical reasoning to make money by making bad arguments look persuasive. Plato continually stressed that good arguments need to be based on knowledge, and not just on appearances, because appearances

can be misleading. Sophists, like Protagoras, who emphasized the subjective aspect of argumentation, were viewed with suspicion. This Platonic philosophy of placing arguments in a framework of knowledge and belief, as opposed to acceptance, had a profound influence on the history of logic. The same sort of fear was exploited by Pascal, who criticized the casuists for laxism, that is, for corrupting morals by rationalizing exceptions to moral rules to make excuses for questionable practices like lying and equivocation. Again the idea is that if you once admit plausible reasoning, based on acceptance, and allowing for exceptions and guesswork, all kinds of corruptions and sloppy reasoning will be used to rationalize all sorts of corrupt practices.

2. *Preference for exact criteria.* Another factor has to be that in teaching logic at universities, there tends to be a strong preference for exact criteria that can be used to determine, without any need for contextualization or judgment, whether a conclusion follows logically or not. Once exceptions to the rule or procedure for deciding correctness of arguments are admitted, then presumably all the students will take up a lot of time pleading for these exceptions and more, on a case by case basis. Classical deductive logic, and its precursor, the syllogistic logic, admit of exact decision procedures. An argument is either valid or not, and it can be tested for validity by purely mechanical means.
3. *Respect for numbers and calculi.* The probability calculus has been welcomed into logic, because it uses mathematical calculations to determine probability values. In western culture, anything that can be calculated with exact numbers attached (even if what is measured is uncertainty) gets more respect than anything that can be merely guessed on a subjective basis. The problem with plausible reasoning has always been that it is a system of rough guessing, based on "weight" of evidence. No one calculus has emerged as the best way for numerically expressing reasoning with such factors. Hence it is easy to dismiss plausible reasoning as something that cannot or need not be taught to students in logic courses.
4. *Positivism and Enlightenment values.* Another factor has been the assumption, characteristic of the modern era, that scientific evidence is the only kind of reasoning worth taking seriously. Everyday practical reasoning used in human deliberations is seen as subjective. Moreover, time and time again, it has been seen to be defeated or questioned by scientific findings. Scientific reasoning, on the other hand, is seen as beyond serious challenge by outsiders who are not scientists, and who lack the scientific knowledge required to prove something, based on evidence.

These four factors, along with other factors no doubt as well, led to the situation where deductive logic, along with the inductive model of statistical

reasoning that was later developed by Pascal and others in the Enlightenment, dominated the logic curriculum. No serious attempt was made to deal with plausible reasoning, or even to admit it as a third type of inference that was important for logic to deal with in any systematic way. The outcome was that the field of applied logic was stultified. The fallacies stayed on in the logic textbooks, but no serious attempt was ever made to figure out exactly what kinds of inferences they represented, and how they should be evaluated.

5

THE DIALECTICAL FRAMEWORK OF LEGAL ARGUMENTATION

Deductive and inductive logics have long been recognized as having places of importance in modeling the logical structure of legal argumentation. But as Larry Alexander (1998) and Richard Friedman (1998) observed, legal argumentation is typically more like the ordinary reasoning used in everyday conversational exchanges that take place outside courtrooms. In chapter 4 of their textbook on legal logic, Robert Rodes and Howard Pospesel (1997, 207–34) venture beyond the formal structure of propositional and predicate logic to teach the textbook user how to analyze arguments used in the context of a disputation. Their first rule for conducting a

disputation is that it is "not enough for the parties to bring forward their own arguments. They must answer the arguments brought forward by their opponents" (209). How such a bringing forward of arguments and answering to arguments should take place is partly a matter of propositional and predicate logic, but in certain important respects, it goes beyond this semantic framework. It is a matter of how arguments have been used for some purpose in a context of disputation. What kind of structure is needed to model disputational use of argumentation? It is shown in Chapter 5 that what is needed is a dialectical structure in which there are rules for different kinds of conversations (dialogues). Conversational postulates (Grice 1975), procedural rules for rational conversation, are needed in order to show how an argument, or moves made in argumentation, can be judged as a contribution to a purposive conversational exchange. Next, it is shown that there are various different kinds of conversations, each with a different goal. An argument used in one type of conversation may need to be evaluated quite differently from its use in a different type of conversation. The chapter then goes on to develop a new kind of dialectical framework that is needed to evaluate how arguments are used in a legal setting. In this dialectical framework, argumentation used in a given case is identified, analyzed and evaluated as a connected sequence of moves in a goal-directed dialogue in which two parties are supposed to be reasoning with each other for some purpose. Unlike deductive and inductive logic, the standards of good reasoning used in dialectical logic are based on how an argument was used in the context of a dialogue.

Once this dialectical structure has been set out, I will show here how it can be used to model the two centrally important kinds of legal reasoning exhibited in Chapter 1. One is the kind of reasoning employed in legal fact finding in trials. The other is the kind of reasoning used to determine what the applicable legal rules are in a given case. It will be shown how the plausibilistic kind of reasoning used to determine what the facts are in a trial can only be evaluated contextually, by viewing the trial itself as an orderly kind of goal-directed dialogue. I will argue that such evaluation should be based on the normative assumption that a fair trial contains a critical discussion type of dialogue in which the goal is to resolve a conflict of opinions. But a critical discussion requires a certain rationality and collaborativeness in reasoning together. In litigation, the purpose of the litigants, and their attorneys as their agents, is to win. So how could the trial be based on the critical discussion model of dialogue? The answer I argue for in Chapter 5 is that you have to look at the goal of the trial as a whole, and not at the individual goals of the participants. The goal of the trial is to provide a setting for dispute resolution through the provision of due process. Then Chapter 5 turns to the kind of reasoning employed to determine

what the applicable legal rules are in a given case. I will show how this kind of reasoning depends on the interpretation of statutes, and how plausible inferences drawn from statutory interpretation also need to be evaluated within a dialectical framework.

1. IMPLICATURE AND CONVERSATIONAL POSTULATES

It is my contention in this chapter that many of the most significant kinds of arguments in legal reasoning are not inferences drawn by deductive or inductive logic, but by a process of plausible inference within a dialogue structure. To grasp how plausible inference works, it is most important to understand the concept called "implicature" in the famous paper on the logic of conversation (Grice 1975). Paul Grice gives the example of a short dialogue in which one person says, "I am out of gas" (70). And another person replies, "There is a gas station around the corner." (This dialogue has been rephrased. Grice uses the terms 'petrol' and 'garage.') The first person draws the conclusion that the second person has "implicated" that the gas station is, or may be open. But how is this inference drawn? It does not seem to be a deductive inference. It is what Grice calls an "implicature." An implicature is a kind of plausible inference drawn by one party in conversation from what another party in the conversation has said.

Another example given by Grice (1975, 71) concerns a graduate student who is a candidate for a job in philosophy. One of his professors writes a letter of reference that reads as follows: "Dear Sir, Mr. X's command of English is excellent, and his attendance at tutorials has been regular, Yours, etc." That is the whole letter. Why has the referee written so little, and why has he not mentioned any of X's good qualities for the job? The reader of the letter would draw the conclusion that what the referee is saying, or suggesting, is that Mr. X would not be good candidate for the job. Why? The reason why such an inference would be drawn derives as much from what was not written in the letter, as much as from what was written. Since the referee did not mention any of X's significant good qualities for the job, the inference is drawn that Mr. X doesn't have any of these good qualities. Perhaps the writer of the letter doesn't want to go on record as positively stating that X has some bad qualities, or would be a poor candidate for the job. He might want to avoid repercussions, like a lawsuit launched by X if he somehow acquires the letter. So the referee uses implicature to get his message across to the reader of the letter.

Implicatures are drawn on the basis of conversational postulates, or collaborative conversational rules that fit the purpose of a conversation. In the case of

the gas station dialogue above, the conversational postulate is that of relevance. As Grice explains (1975, 70) the remark, 'There is a gas station around the corner' would violate the conversational postulate 'Be relevant' unless the respondent thinks, or thinks it possible, that the gas station is open and has gas to sell. In the case of the letter of reference, to grasp the conversational postulates on which the implicature is based, we have to look at the letter from the point of view of the reader.

> (The referee) cannot be opting out, since if he wished to be uncooperative, why write at all? He cannot be unable, through ignorance, to say more, since the man is his pupil; moreover, he knows that more information than this is wanted. He must, therefore, be wishing to impart information which he is reluctant to write down. This supposition is only tenable on the assumption that he thinks that Mr. X is no good at philosophy. (71)

The referee would normally be expected to give out the information he must have about his student, in a letter of reference. For the purpose of such a letter is to give such information. The failure to give this information triggers an inference to the best explanation. How can the letter be interpreted? The plausible interpretation is that the writer wants to communicate information that he does not want to write down. If he wrote it down, he would be explicitly committed to the assertion that X is no good at philosophy. He evidently wishes to communicate that message, and is choosing to do so indirectly. This conclusion can be drawn by knowing something about how letters of reference work as communicative documents. The conversational postulate governing this example is one of quantity: "Make your contribution as informative as is required (for the current purposes of the exchange)" (Grice 1975, 67). The following court dialogue in a famous case cited by M. B. W. Sinclair (1985, 384) illustrates a violation of the postulate of quantity.

> Q: Do you have any bank accounts in Switzerland, Mr. Bronston?
> A: No, sir.
> Q: Have you ever?
> A: The company had an account there for about six months, in Zurich.

Although Bronston had maintained a personal bank in Switzerland for almost five years, his reply was not actually false. His second answer was true, but was less informative than it should have been, and hence misleading. Bronston was

convicted of perjury. But his conviction was later reversed by the U.S. Supreme Court.

Grice cites other conversational postulates: "Do not make your contribution more informative than is required"; "Do not say what you believe to be false"; and "Avoid ambiguity." All these conversational postulates are governed by what Grice calls the CP or cooperative principle: "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged" (1975, 67). The Gricean framework has sweeping implications for the analysis and evaluation of legal argumentation and evidence. The import of it can already be seen by realizing that Grice has defined relevance in terms of the relationship of question and reply in a dialogue. The inference drawn in the gas station conversation is a plausible inference drawn by default, on a basis of the conversational postulates for the type of dialogue in which the two parties are supposedly engaged. One asks for information from the other. Since the first party does not say that the gas station he refers to is closed, as far as he knows, the other party draws the conclusion by plausible implicature that the gas station is open, as far as the first party knows. What Grice has shown is doubly important for legal argumentation, because relevance is a basic building block of evidence law. If Grice is right that relevance is a dialectical concept that needs to be judged in light of the purpose and conversational postulates appropriate for a type of dialogue, the whole basis of the structure of argumentation and inference underlying legal reasoning needs to be seen in a new light.

The notion that legal argumentation needs to be evaluated within a conversational setting applies to different kinds of legal arguments in different ways. One application is to the kind of reasoning used in statutory interpretation. What is left unstated in a statute can often be as significant as what was explicitly stated, when a legal decision must be made on how to interpret a ruling. If some activity is banned in a specific location, according to a statute, what may be inferred by implicature, depending on the exact wording of the statute, is that the activity is not banned in some areas outside that location. Many factors can be relevant in deciding whether such an inference is warranted or not, however. The various kinds of arguments that can used for purposes of statutory interpretation were listed in Chapter 1, Section 2. How then does a court decide in a given case whether such an implicature can be drawn? Of course, the basic evidence is to be found in the text of the statute. But other considerations can be important as well. According to Geoffrey Miller (1990, 1196), when a legislature specifically provides a certain bit of information in a statute, a conversational setting between the legislature and its audience of courts and citizens is created. It is this conversational setting that determines what is, or is

not, a reasonable inference that can be drawn from the wording of a statute. If Miller is right, the conversational postulates for this type of dialogue are part of the evidence by which legal argumentation should be evaluated.

The Gricean theory of conversational implicature has one great lack that needs to be filled before it can be applied to legal argumentation. The Gricean cooperativeness principle (CP) tells us that arguments need to be evaluated in light of the purpose of the dialogue that the argument is supposedly part of, at any particular stage of the dialogue (Grice 1975, 67). But the obvious fact remains that there can be different types of dialogue. Each type of dialogue has a distinctive purpose. Until we know how to identify these various types of dialogue, and identify the purpose of each type, we can't really get very far in applying Gricean theory to the evaluation of argumentation. Therefore the next sections of this chapter will identify these types of dialogue, stating the goal of each type of dialogue. Before going on to these matters, and before going on to examine dialectical argumentation in statutory interpretation, another kind of highly prominent legal argumentation needs to be considered. The adversarial argumentation typically found in a trial is especially interesting. The next sections of Chapter 5 center around discussing this type of argumentation with respect to classifying it as a type of dialogue.

2. RATIONAL PERSUASION IN THE TRIAL

One central problem of applying this work on dialectical logic to legal argumentation is that of analyzing the interactive framework of argument use, which I shall call "the fair trial." There are many different kinds of legal arguments used for many different purposes on many different occasions, but the trial is prominent as an institution that is centrally important in law. When arguments are used in a trial, whatever specific type of trial it may be, and whatever may be the particular jurisdiction, can we judge such arguments to be correct or incorrect with respect to how they have been used as part of the trial procedure? This question, I hope to show, can be answered affirmatively, if we can classify the fair trial as a normative model of argumentation that has a definite goal, and that has argumentation structures that are the means of realizing that goal.

In a trial, there is a conflict of opinions, and each side tries to persuade the judge or jury that its opinion is right. Each side will have a burden of proof. The nature of the trial being what it is, there will be a winner and loser, once the trial has been completed. It would appear then that the central goal of any argument used in a trial is that of persuasion. But it is not just any kind of

persuasion. The persuasion is also supposed to be what is called "prove." It is supposed to prove something. The use of the word 'proof,' so common in legal discourse, suggests that not just purely psychological or rhetorical persuasion is meant.[1] The arguments, to be persuasive to prove what they are supposed to prove, must somehow be logical, and must be based on what are supposed to be the real facts in a case. Indeed, much of what goes on in the argumentation in a trial cannot be classified as persuasive speechmaking. It is true that the argumentation is broadly persuasive in nature. But when scientific evidence or eyewitness testimony is brought into court and presented, presumably it is based on facts that were observed, and that can be verified or tested. Clearly then, while persuasion is central to the trial, there are other things going on as well, that can be identified as part of the argumentation. Presumably, information is being extracted and presented to the court. And both sides can examine this information, and challenge it, if they want to, as well. But before we even get to these other aspects of the argumentation used in a trial, we must probe a little more deeply into the nature and purpose of persuasion as a goal of advocacy.

According to Marcus Stone, "To persuade is the objective of advocacy, which includes the presentation of evidence" (1995, 87). The addition of the clause including the presentation of evidence reveals that the purpose of advocacy is not simply one of rhetorical persuasion, but is a kind of persuasion that is based on evidence. Advocacy simply means persuading a target audience to accept a particular conclusion (contention, proposition) that is being advocated. In a trial the advocates on opposed sides are trying to persuade the audience to accept opposed propositions. The one proposition can be accepted as true only if the other is not. For the trial as such is based on a conflict of opinions, meaning two opposed propositions are advocated by the two contesting sides.

What then should be meant by persuasion, in this legal sense of the term? Is it purely rhetorical persuasion, of the kind that we commonly identify with rhetoric and salesmanship—persuading your audience by any means that will psychologically move them to come to accept the proposition you advocate to them? Or is it rational persuasion—using good reasons to persuade your audience by convincing arguments they should accept as rational persons who can weigh the evidence on both sides of an issue? Or is this a false dilemma? Does

1. The kind of rational persuasion appropriate for legal discourse in a trial involves providing of reasons in a dialogue. Rationality involves not only giving of reasons, when required, but also responding appropriately to critical questioning. This kind of rational persuasion is indicated by the following rule of rationality articulated by Alexy: "Every speaker must give reasons for what he or she asserts when asked to do so, unless he or she can cite reasons which justify a refusal to provide a justification" (1989, 297).

persuasion in the legal sense combine rhetorical advocacy with the giving of good reasons to support a claim?

The way the Anglo-American common law system sets up the process of persuasion and evaluation of argumentation, the answer runs as follows. First, the system is adversarial. The plaintiff and the defendant sides, for the system to work, are supposed to present the strongest possible arguments they can muster to prove their (opposed) contentions. In this respect, the argumentation has the framework of a quarrelsome or purely adversarial type of exchange, in which each side tries to defeat the other. As mentioned at the beginning of Chapter 5, it may be observed that the real purpose of the litigants and their attorneys is to win. But the goal of the trial needs to be viewed normatively from a broader perspective. The purpose is to provide a setting for dispute resolution through due process. For this purpose, a framework of rationality is imposed on the process by having a trier (judge or jury) who hears all the arguments on both sides, and then comes to an independent decision on who had the stronger, or more persuasive, argument. An additional framework of rationality is also imposed by having the arguments of both sides filtered through the rules of evidence. What kinds of arguments are admissible and relevant is determined by the rules of evidence. And the judge will not allow any argument into the court that does not fit the framework of the rules of evidence. So the rules of evidence introduce a kind of procedural rationality component, assuming that the rules themselves can rightly be judged to mark off what should count as evidence, where 'evidence' means what is or should be rationally persuasive.

But there is another factor as well. Once all the arguments on both sides are in, the trier decides which side had a strongly enough persuasive argument to fulfill its burden of proof. The task of the trier at the decision-making or so-called deliberation stage—once the argumentation stage where the advocates on both sides have presented their arguments and summarized them has been completed—is to weigh up the evidence on both sides by looking at the whole picture. This stage involves a holistic process of putting all the evidence into one big body of evidence. In this judgment, each individual argument used by an advocate, if it was persuasive, has a "weight," which is usually a small weight in the larger picture. In a case tried by jury, this process can be visibly argumentative as well. A majority may try to get a minority to come around to accepting their decision, for example. So is this part of the process a rational kind of persuasion? The answer is: not necessarily. It depends on the participants. But in general, they will be most influenced by the arguments that, in their minds, were most persuasively put forward by the advocates. There is no guarantee that the way they make up their minds will be based on any kind of rational

persuasion, even though, ideally, it is supposed to reflect some sort of rational persuasion.

Where does the rationality of the argumentation in the system come in, then? What, if anything, is supposed to make the process a way of deciding a case based on rational argumentation? The only answer comes from the rules of evidence, and the other procedural rules adopted by a court—rules for collecting evidence, for deciding what counts as evidence, rules for determining who has to prove what to win a decision, and so forth. These rules cannot guarantee that the trier of fact will reach a rational decision on the outcome of a case at trial. But by specifying what counts as "evidence," these rules are supposed to place the kind of legal argumentation used and evaluated in a trial on a level somewhat above that of purely psychological persuasion. Here we can make a distinction between psychological or rhetorical persuasion, as opposed to a kind of persuasion that can be called rational persuasion. The rules of rational persuasion are procedural, and are meant to model due process, by a normative standard of rational discussion. But they do not guarantee the right outcome in a trial.

In a way, the adversarial system is based on an admission of this failure. The hope is that as long as the trier can hear all the evidence and all the strongest possible arguments on both sides, somehow the truth of the matter will come out of it. Or if not, at least both sides will have fair chance to get their say. And so, at least, the danger of making a wrong decision will be minimized. However, we know that the system can fail, and that the wrong outcome can be arrived at by a judge or jury. New evidence has shown that wrongful conviction is probably a lot more common than anyone had imagined. With the advent of DNA testing, an impressive number of wrongful convictions for crimes like rape and murder have now been revealed.

Knowing that the argumentation in a trial is fallible, the burden of proof will be set as a balance in such a way as to minimize the harm caused by a wrong outcome. In a criminal trial, the harm of convicting an innocent person is a serious wrong, so the standard set for proof is high. The prosecution must prove its claim beyond a reasonable doubt, whereas the defense, to succeed, needs only to show, by questioning the prosecution's case, that reasonable doubt exists. But what guarantee is there that such a contest of arguments will bring out enough relevant evidence in a case to show clearly to the trier that one side's claim has been proved and that of the other refuted? The answer is that there is no guarantee, as we know from past cases of wrongful conviction, not to mention cases of setting free the guilty. If there is no such guarantee, then what is the worth of a trial? What is the point of it? What does it accomplish when it is successful? The answer would seem to be that the successful

trial presents enough evidence, and tests out the strongest arguments on both sides so that all their weaknesses as well as their strong points are brought out for the trier to judge. The procedural rules are meant to ensure that, in the end, an intelligent judgment of the comparative weight of evidence on both sides can be arrived at. This would seem to be the theory, at any rate. But how does it really work? The answer resides in the observation that arguments used in a trial are used for different purposes on different occasions. The kind of argument used to cross-examine a witness may be quite different in its goal from the kind of argument used to try to convince a jury that a contract means one thing rather than another. Both arguments may have the ultimate goal of persuading the jury to accept a claim, but the immediate goal of the argument may be to try to get some information or challenge the credibility of another proposition that is relevant to this ultimate goal of persuasion.

While persuasion is a central purpose of the use of argumentation in a trial, the problem is that it is not the only purpose. Argumentation appears to be used for other purposes within and related to this central purpose. Modern argumentation theory would describe the situation by saying that there are several different types of dialogue involved. Each type of dialogue has its own distinctive goal. To begin to study how argumentation is used in the trial setting, the first step is to examine the characteristics of these different types of dialogue.

3. NORMATIVE MODELS OF ARGUMENTATION

A considerable amount of work has already been done in the new field of dialectical logic, and the task carried out in this chapter is showing how this work can be extended to assist with modeling legal argumentation (primarily in the Anglo-American common law system). The dialectical approach to the evaluation of argumentation seems to be more of a European than a North American initiative, based most notably on the work of Chaim Perelman and Lucie Olbrechts-Tyteca (1969), Else M. Barth and Erik C. W. Krabbe (1982), Frans van Eemeren and Rob Grootendorst (1984; 1987; 1992), Robert Alexy (1989), and L. Jonathan Cohen (1977; 1992). However, this approach is also based on the fundamentally important work of the Australian logician Charles Hamblin (1970; 1971; 1987) on the structure of formal dialectical systems, the continuing work of his former student Jim Mackenzie (1981; 1990), and on the dialectical logic of plausible reasoning of Nicholas Rescher (1976; 1977). The work of Jaakko Hintikka on dialogue models of argumentation should definitely be cited here as well (Hintikka 1992). Finally, the pioneering work of J. Paul Grice

(1975) on the pragmatic logic of conversational arguments also needs to be mentioned again. Work on artificial intelligence, and especially on defeasible reasoning, as indicated by Gerard Vreeswijk (1997), has more and more begun to take argumentation theory into account, and to move toward the dialogue model. Now some works specifically on legal argumentation using the dialogue model have appeared. Another development was the growing interest in legal argumentation on the part of those working in AI. Bench-Capon (1998) showed how legal argumentation can be modeled in a dialogue format using methods of computer formalization. Jaap Hage, Ronald Leenes, and Arno Lodder (1994) analyzed argumentation in so-called hard cases in law using a dialogue model in which two parties reason with each other. They developed what they call a "dialogical reason based logic" as their model of the reasoning used to justify legal conclusions arrived at in hard cases. Lodder's doctoral thesis (1998) and his subsequent book (1999) apply the dialogue model of argumentation to legal reasoning. Lodder has analyzed legal argumentation by building on many of the prior models of formal dialogue cited on page 160. Eveline Feteris (1999) has analyzed the argumentation in the trial using the critical discussion model—a normative dialogue model in which a conflict of opinions is resolved by two parties who take turns engaging in rational argumentation with each other.

In the remarks that follow, what is given is not an empirical description of argumentation in any actual legal system, or a description of any actual system of rules of procedure for argumentation in dialogue. What is given is a normative model that represents a logical idealization of the properties such a system ought to have if it is to achieve its goals in an efficient way that makes good use of argumentation, is logically consistent, and that avoids fallacies and other logical difficulties. The normative model given is much simpler than the real system of law in any given jurisdiction at any given time. It is a kind of abstraction that may be taken to represent some features of realistic legal argumentation in particular respects, but will deviate from the argumentation used in real cases in other respects. So it is best to think of it as an idealized model which represents one view of how legal argumentation ought to be analyzed and evaluated from a logical point of view. On the other hand, the model is tied to reality, to some extent. It is based on the kind of reasoning that is used in everyday argumentation, presumably the same kind of reasoning a jury would use when reaching a decision on how to rule in a particular legal case.

Legal reasoning is based on inferences of the kind described in Chapter 2. In legal reasoning a proposition is accepted as true, or not accepted as true, on the basis of whether it is justified or not by other propositions that are accepted as true. As shown in Chapter 4, legal reasoning is made up of sequences of such

inferences chained together. In each inference, the argument from the premises throws a small weight of probability onto the conclusion. Such inferences are generally defeasible in nature, i.e., the weight of evidence in favor of a proposition can be stronger or weaker, but even if it is very strong, it may later turn out to be defeated by the introduction of new evidence. When all the evidence in a case is put together, however, the mass of evidence may be enough to tilt the burden of proof to the one side or the other.

A dispute may arise about whether a particular proposition is true or not, or should be accepted as true or not. Where it cannot be decided whether the proposition is true or not, and the dispute needs to be resolved, and cannot be resolved by any means, the dispute may then go to trial. The main thing about a fair trial is that there is a conflict of opinions that should be resolved in a dialogue where both sides bring forward the strongest evidence they can to support their own contention. In this setting, arguments on both sides are allowed to interact, so that each can criticize the arguments put forward by the other side. The basic idea should be that the arguments on both sides should be tested out in a dialogue where each side brings out the arguments it thinks to represent their strongest evidence supporting its contention. Both sides should be free to bring out this evidence, but the evidence brought out should be relevant, in the sense that it really bears on the issue of contention in the trial. Then the trier (the judge or jury), who has followed all the argumentation on both sides throughout the whole trial, can make up its mind on the outcome, decided on a basis of burden of proof that was agreed on before the trial started.

The two most important components of legal dialectic are the concept of evidence and the concept of the fair trial. Both these ideas are hard to define, because they are vague and subject to interpretation, and because they are constantly being subjected to testing and interpretation by legal trials and new developments. So we can have different theories or models, oversimplified pictures, of what these things are, or how they should be viewed. These theories are meta-legal constructs that represent philosophical interpretations of what the theorist thinks that legal argumentation should ideally be like. So the theories themselves are subject to dispute. It is particularly tricky to construct and evaluate a theory of evidence, because what you are using to evaluate the theory is (presumably) evidence for or against the theory. But in the case of legal evidence, this circularity is not so much of a problem. The theorist is only trying to give a definition of a particular kind of evidence—legal evidence—based on considerations of a more general nature that are not exclusively legal in nature, but are meta-legal and philosophical in nature, as well as having some legal elements.

Before going on to study the concepts of evidence and the fair trial in more

depth, we need to reconsider the types of arguments, or so-called argumentation schemes, used both in legal argumentation and in everyday argumentation outside legal contexts. But even before getting to this point in the exposition, it is necessary to outline other recent developments in argumentation theory. In the pragmatic approach to the evaluation of argumentation, arguments are judged on how they are used in a particular case to contribute to the goal of the dialogue in which the argument is embedded. That is, the pragmatic presumption is that for every argument used in a given case, the argument was used by one party as part of a goal-directed dialogue with another party. In other words, every argument used in a particular case has a context of use. That context of use is called a dialogue (or conversation), and the argument needs to be evaluated with respect to how it was used in the context of dialogue it was (supposedly) a part of in the given case. But what kind of goal-directed structure is a legal disputation, of the kind that is typified by the fair trial? It is a structure that is highly adversarial, as far as the arguments used by the two opposed advocates in it are concerned. But it also has a lot of procedural rules that can vary. The participants are bound to these rules by a judge. To determine what kind of structure this might be, in general outline, we have to turn to an examination of the types of dialogue that have been studied.

The new practical approach to argument evaluation is called dialectical in the ancient Greek sense (Hamblin 1970), implying that every argument has a proponent and a respondent. The two parties are engaging together in a so-called dialogue, or goal-directed type of conversational exchange in which the argument is being used by the proponent for some purpose. Although the two parties are contesting with each other in an exchange that is partly adversarial (or agonistic, meaning that they are struggling with each other to try to be victorious over the other), they are also supposed to be collaboratively taking part in an orderly exchange that requires cooperation. As noted above, this collaboration requires following the Gricean cooperativeness principle. The CP requires each party to make moves that are appropriate for the stage of the dialogue that the conversation is in. To quote the CP again, "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged" (Grice 1975, 67). According to van Eemeren and Grootendorst (1984; 1992), a dialogue of the kind they call a critical discussion (see below) has four stages—an opening stage, a confrontation stage, where the issue is defined and agreed upon, an argumentation stage, where the arguments are put forward and criticized by both sides, and a closing stage. An argument that is appropriate (correct, relevant, nonfallacious) at one stage, might be judged quite differently where it has been used at another stage of a dialogue exchange.

In other words, it is not just the reasoning used in argumentation—the chain of valid or invalid inferences in the argument—that is whole story of how the argument should be evaluated (as used in a given case). What is also important is how that chain of reasoning was used to make some point in the context of a dispute (dialogue). One can appreciate this pragmatic aspect of argument evaluation by considering the concept of relevance. An argument that was relevant at one stage of a dialogue may fail to be relevant at another stage of the same dialogue. Relevance of an argument in a dialogue is very much relative to the prior moves in the dialogue that the argument was supposed to respond to. Relevance is also determined by the goal of the dialogue that the argument was supposedly part of. The dialectical nature of such a pragmatic concept of relevance was already indicated in the pioneering account of conversational argument sketched out in Grice (1975). Many of the kinds of argumentation associated with traditional fallacies, like the *ad hominem* argument and various appeals to emotions, are in fact arguments that, when they are fallacious, are such in virtue of a failure to be dialectically relevant (Walton 1995). In such instances, the same argument could be relevant in one context of dialogue, but irrelevant as used in another dialogue. A good example is the use of an *ad hominem* argument to attack an arguer's credibility. This type of argument can be relevant in some cases, as used in cross-examination of a witness in a court of law, while in other cases, it is irrelevant.

An important general factor in evaluating arguments pragmatically is that an argument can be quite correct or reasonable as used in one type of dialogue, but the same argument could be fallacious when used in a different type of dialogue. In other words, there are different types of dialogue that can function as contexts for the use of argumentation. According to the normative framework presented in Walton (1995) and Walton and Krabbe (1995), there are six basic types of dialogue of this kind. It is not that six is the magic number, or that there can be no other types of dialogue other than these six. But judging from the investigation of fallacies, and other phenomena pertaining to the evaluation of argumentation in everyday conversational exchanges, the evaluation of an argument generally tends to reduce to a consideration of some combination of some subset of this set of six types of dialogues.

One has to be careful in using these models of dialogue to be clear that the goal of the dialogue as a whole is different from the individual goals of each of the participants in the dialogue. Generally, the main factor in evaluating any argument is how well it contributes to the goal of the dialogue as a whole. According to the framework in Walton (1995), an argument as used in a given case is fallacious if it was used in such a way that it blocks or goes against the goal of the type of dialogue it was supposed to be a part of. So it is the goal of

Table 5.1 Types of dialogue

Type of Dialogue	Initial Situation	Participant's Goal	Goal of Dialogue
Persuasion	Conflict of opinions	Persuade other party	Resolve or clarify issue
Inquiry	Need to have proof	Find and verify evidence	Prove (disprove) hypothesis
Negotiation	Conflict of interests	Get what you most want	Reasonable settlement that both can live with
Information-seeking	Need information	Acquire or give information	Exchange information
Deliberation	Dilemma or practical choice	Coordinate goals and actions	Decide best available course of action
Eristic	Personal conflict	Verbally hit out at opponent	Reveal deeper basis of conflict

the dialogue as a whole that is the uppermost factor in evaluating an argument as correct or incorrect, weak or strong.

4. PERSUASION DIALOGUE

In the first type of dialogue, called the persuasion dialogue, the one party, called the proponent, has a particular proposition designated as her thesis, and her goal is to prove this proposition by means of the kinds of arguments accepted as persuasive in the dialogue. The goal of the other party can be of two sorts, depending on the type of critical discussion. In the one type, the respondent's goal is achieved if he raises enough of the right sort of questions to throw the success of the proponent's attempted proof into doubt. In the other type, the respondent's goal is more difficult to achieve. It is to prove a thesis that is the opposite (negation) of the proponent's thesis, thereby proving that the proponent's thesis is false. What kinds of arguments are accepted as persuasive in this type of dialogue generally? For an arguer's argument to be persuasive, it must have his own thesis as its conclusion, and it must have as premises only propositions that are commitments of the other party. More below on what commitments are.

The most familiar type of persuasion dialogue is called the critical discussion by van Eemeren and Grootendorst (1984; 1992). The goal of the dialogue in a critical discussion is to resolve the initial conflict of opinions that is at issue in

the dialogue. The critical discussion has ten rules (van Eemeren and Grootendorst, 1987, 184–293), which can be paraphrased as follows.

1. Parties must not prevent each other from advancing arguments.
2. An arguer must defend her argument if asked to do so.
3. An attack on an arguer's position must relate to that position (and not some other position).
4. A claim can only be defended by giving relevant arguments for it.
5. An arguer can be held to his implicit premises.
6 and 7. An argument must be regarded as conclusively defended if its conclusion has been inferred by a structurally correct form of inference from premises that have been accepted by both parties at the outset of the discussion.
8. Arguments must be valid, or be capable of being made valid by the addition of implicit premises.
10. Formulations must not be unduly vague or ambiguous.

Violations of these rules of collaborative critical discussion are identified by van Eemeren and Grootendorst with informal fallacies. For example, committing the *ad baculum* fallacy would be seen as a violation of Rule 1, which forbids parties from using force to try to prevent the other party from advancing arguments.

In Walton (1995), the critical discussion is classified as a subtype of persuasion dialogue. The main reason is that in a critical discussion, the dialogue is only successful if the conflict of opinions is resolved, by showing that the argumentation of the one party is successful, while that of the other party is not. But in many instances of persuasion dialogue, for example in a philosophical discussion of a controversial issue, the dialogue can be successful if real light is thrown on the issue for both participants. This gain can occur even if the conflict of opinions has not been resolved, by showing that the argumentation of the one party is successful, while that of the other party is not. In other words, in many instances of persuasion dialogue, the dialogue can be successful, even if it is not the case that the one party is the winner and the other is the loser. In such a persuasion dialogue, the dialogue can reach its goal if the maieutic function of giving birth to new ideas has been achieved. In the maieutic function (Walton and Krabbe 1995), probing arguments used in a dialogue exchange clarify a participant's commitments, and strengthen her arguments. The upshot is that she sees the weaknesses in them, and not only that, she sees how these arguments need to be refined and qualified so that they avoid the objections that can be brought against them by an able opponent. When the maieutic

function is fulfilled, an arguer not only gains deeper insight into her own commitments, but she also gains insight into the reasons why the other party is committed to his thesis. By means of the strong arguments used by both sides in a successful persuasion dialogue, the positions of both sides are tested out and refined, even if the issue is not resolved in the sense that the one thesis is proved to be true and the other false.

To better understand persuasion dialogue, and all the other five types of dialogue, it is necessary to define the concept of an arguer's commitment. According to Hamblin (1970; 1971), each participant in a dialogue has a set of propositions called a commitment store, and propositions are inserted into this store, or deleted from it, as the dialogue proceeds. The idea is that the participant begins with a commitment to proving her thesis in the dialogue, and then as the dialogue proceeds, and the participant makes a certain type of move, propositions will be inserted into the store, or deleted from it, in accord with the type of move. For example, if a participant makes a move asserting the truth of a particular proposition, then she becomes committed, at the next move, to that proposition. So as the dialogue proceeds the commitment store represents a kind of ideal model of the arguer's position, the collective set of propositions that represent her point of view, or stance on the issue. All the six types of dialogue cited here are organized around the fundamental idea of the commitment stores of the participants. In Hamblin's scheme of things, the commitments of a participant in a dialogue are always on view to all the participants in the dialogue, and these commitments strongly influence how the dialogue proceeds, and how the aims of the participants are fulfilled or not. Any argument, if it is to be successful, must always be based on the commitments of the other party.

What is vitally important is the distinction between commitment and belief. 'Acceptance' and 'assent' may be taken as other words for commitment. But if you accept something, or assent to it, you might not necessarily go so far as saying you know it is true, or even that you believe that it is true. Much traditional philosophy has been based on the notion that evidence is knowledge, or at least justified true belief. True belief and knowledge are taken to be mental states. Commitment is different, in that if you are committed to a proposition, it doesn't necessarily follow that the proposition has to be true. Nor does it necessarily follow that the commitment is your mental state, or represents what you actually believe. Commitment in dialogue represents what an arguer has gone on record as accepting, based on how she has argued, and on what the rules of dialogue indicate should follow as a consequence from what she accepted. This notion of commitment in dialogue as developed by Hamblin fits extremely well with the theory of plausibility of Carneades, who developed his

theory in opposition to the prior Stoic view that to assent to an impression is to take that impression to be true (Bett 1990, 7). Carneades did not want to be tied to any notion of true belief or assent insofar as these notions imply some kind of psychological state. He was enough of a skeptic to be aware of the fallibility of human thinking. Like the later American pragmatists, he felt it was useful to be cautious about fixing assent. Subsequent testing of one's supposed true belief might show that it was not a true belief after all, in light of what one can judge from the new information received. Thus what one should do is to tentatively accept a proposition or impression that seems to be true as a basis for action, even though later, commitment to that proposition may have to be retracted. In normal human deliberation about what to do, or in philosophical argumentation about controversial matters of ethics or metaphysics, the most rational way of thinking is to be open-minded, but not to entirely suspend judgment, and fall into inaction. You must go ahead with commitments, but then be prepared to retract your commitment, if it appears you were mistaken.

The holding and retracting of commitments should be seen as relative to the type of dialogue one is engaged in. Thus the holding of commitment, as opposed to the fixing of true belief, depends on the context of dialogue, and on the purpose of that type of dialogue. The holding of commitment, in a word, is pragmatic. In persuasion dialogue, the participants must be fairly free to retract commitments if they wish to do so, without penalty. By contrast, in the inquiry type of dialogue, the participants are not generally free to retract commitments, as the dialogue goes along. Indeed, the central purpose of the inquiry is to verify a commitment by very strong evidence, so that, in principle, there should never be any need to retract a proposition. The goal of the inquiry is to prove that a particular proposition is true (or false), or alternatively, to prove that it cannot be proved as true (or false). The defining characteristic of argumentation in the inquiry is the property of cumulativeness, meaning that once a proposition is accepted as "verified" or "established" as true at any point in the inquiry, it is never retracted at any succeeding point. The inquiry can be modeled as a tree structure where the nodes in the tree represent "evidential situations," or points at which sets of propositions are verified (Kripke 1965). As argumentation proceeds up the tree, from its root along a branch, the set of propositions that are verified gets larger and larger, but none of the propositions are ever retracted.

The persuasion dialogue and the other models of dialogue are highly simplified models of the argumentation that typically takes place in real cases. In the persuasion dialogue, there are only two participants, a proponent and a respondent. In a trial, there are other participants who need to be considered. In a criminal trial for example, the main protagonists in the argumentation are

the prosecution and defense attorneys. But then there is an important third party, the trier. In the case of a jury trial, the trier is a group of persons who may disagree, and will generally engage in prolonged argumentation as a sequestered group. Feteris has shown that the difference of opinion in a legal process is more complex than that in a critical discussion. There is not only a dispute between the plaintiff and the defendant, but also there is a difference of opinion between the judge and the defendant. And yet the judge must remain "neutral" (1999, 174). But this is not the end of it. There are other participants and other factors to be considered as well. Each attorney is an advocate representing a client. What the client says to his or her attorney will influence the argumentation used in court. The client engages in dialogue with his or her attorney, and this dialogue will contain argumentation. Also, witnesses appear from time to time in a trial. The attorneys question the witnesses and sometimes engage in argumentative exchanges with them. How these groups interact is also complex. It's a bit like a play, where the actors engage in dialogue with each other and the audience follows this dialogue, drawing conclusions and making interpretations on the basis of what was said by the actors. In a comparable way, the two attorneys are engaging in a dialogue with each other. The complex interactions of a dialogue within a dialogue are comparable to the dialogue situation of the play in some ways. The verbal contest between the two sides has a comparable kind of complexity to a kind of staged dialogue between actors in a play. Both are designed to have an impact on an audience. Of course, there are also important differences. In a play, the dialogue is written in advance, and the aim is to entertain the audience. In a trial, the argumentation cannot be entirely pre-written, and a person's fate may depend on the outcome. But still, the trial is a complex phenomenon. Its dialogue structure is more complex than that of a simple persuasion dialogue.

Given these differences and complications, how can the persuasion dialogue model the argumentation in a trial? First of all, the trial, seen from the viewpoint of the litigants and attorneys for the two sides, seems more accurately modeled as eristic rather than as persuasion dialogue. As noted above, it is often observed that in a trial, the purpose of the litigants, and their attorneys as their agents, is simply to win. This win-at-all-costs model makes the dialogue eristic. That is, the form of the dialogue is essentially a purely adversarial contest or quarrel. This aim appears to be in conflict with the purpose of the legal system, which is to provide a forum for dispute resolution, presumably to do justice through the provision of the process. Perhaps the litigant's purpose should be seen as receiving a fair settlement by just arguments. But this account is an idealization that would not seem to accurately describe most litigants. Therefore it would seem that, in its most accurate and realistic description, the trial

is not a persuasion dialogue, but something more adversarial, perhaps even an eristic dialogue.

It is probably accurate and realistic to say that the opposed attorneys in a trial do look at the trial from an eristic viewpoint, in which the goal is to win. But that represents the trial only from the viewpoint of these two participants. What if we look at the trial from the viewpoint of the trier? Adding this point of view makes the structure of the trial appear more complex. It is a bit like that of the play, in which actors engage in dialogue, but there is also an audience following that dialogue, and drawing conclusions from the interactions between the actors. In argumentation theory, what is most vital to a model of dialogue is not just the goals of the arguers, but the goal of the dialogue as a collaborative goal-directed structure. The goal of the trial as a legal institution is to provide a forum not just for disputing, but for providing a forum in which the dispute can be resolved fairly by due process. The over-all purpose is to provide a structure within which the clashing arguments on both sides can not only be expressed in the most persuasive manner; the purpose is also to channel and structure the putting forward of these arguments so those who are to judge the arguments can observe the contest and judge the strengths and weaknesses of the arguments on both sides. A judge can then arrive at some reasoned judgment about what the evidence as a whole proves. Thus the eristic, adversarial dialogue contained within the trial has a proper function within the wider structure of the trial as a whole. The advocates on both sides need to bring out the strongest arguments to support their opposing views, and to attack the arguments of the opposing side as strongly as possible. This Darwinian contest is useful to the goal of the trial as an over-arching structure of goal-directed dialogue.

The thesis of this book is that the core structure of the trial can usefully be modeled, from a logical point of view, as being that of the critical discussion, a type of persuasion dialogue. That thesis has now been strongly supported by the approach of Feteris (1999), who has also argued that legal argumentation can be analyzed and evaluated using the critical discussion model. But to make this modeling work, you have to look at the goal of the trial as a whole, and not just at the goals of various participants in the trial. The trial as a legal institution involves several participants, and several other types of dialogue in which various groups of these participants use argumentation. The opposed attorneys engage in an adversarial dialogue that is often described as eristic in nature. Witnesses appear, and present testimony. Hence the dialogue structure of the trial is more complex than that of the simple persuasion dialogue. But the underlying aim of the whole dialogue as a goal-directed structure of argumentation is to provide a larger forum for dispute resolution through the provision

of due process. Thus the purpose of the rules of evidence becomes apparent. These rules are designed to prevent the dispute from degenerating by a dialectical shift into the kind of pervasive quarrel in which the stronger side crushes the weaker by using all kinds of irrelevant and fallacious arguments. Such eristic arguments might persuade the jury, but at the cost of pushing aside and subverting the critical discussion dialogue that is so essential to the fair trial.

5. OTHER TYPES OF DIALOGUE

The inquiry is an ideal model of reasoned argumentation, but a lot of people ask at this point whether scientific argumentation is (or should be) an inquiry. Those philosophers, like Pascal and Descartes (men of the Enlightenment), who answer yes to this question are called foundationalists. The foundationalist view of scientific research was popular, not to say dominant, during the time of logical positivism. But this has been under severe attack by postmodernist thinkers for some time, and it does not seem to be as widely accepted as it once was. Euclidean geometry is a good example of scientific argumentation that has been cast into the format of an inquiry. Conclusions drawn can only be based on axioms, or premises already proved as following from these axioms by the truth-preserving rules of inference (deductively valid rules). An example of an empirical inquiry would be an official government investigation into an air disaster, where the aim is to assemble all the relevant evidence, and draw only conclusions that can be verified on the basis of this evidence.[2] I understand there are specific legal rules governing different kinds of official inquiries, and it would be an interesting project to study and classify these different types if inquiry, using the inquiry type of dialogue structure as a model.

The purpose of negotiation dialogue is not to prove the truth of a proposition, but to "make a deal," by trading off concessions so that you can get what you want most, and the other party can get what he wants most. The confrontation in the negotiation dialogue is set by a conflict of interests between the two parties. There are some goods or interests—normally financial in nature, but it could be something else, like prestige, that is at stake—and neither party can have all these interests to herself. So the argumentation pertains to the dividing

2. A clarification is needed here. The normative goal of an inquiry is to only accept propositions that are verified, so that the need to go back and retract these commitments is eliminated. This normative goal is an ideal, however. In any real inquiry, retractions will often have to be made. For example, in an inquiry into an air crash, later investigation might discover that earlier conclusions drawn about metal fragments might have to be retracted. So retraction is appropriate in such a case. Even so, the goal of the inquiry is to verify each finding carefully so that subsequent retractions of previous findings should not be necessary.

up of the interests. There is a large literature on negotiation, and even a journal exclusively devoted to it. It is not necessary to describe it further here, except to warn the reader that the general aim and methods of arguments used in negotiation dialogue are distinctively different from those of persuasion dialogue, even though the same types of arguments are used in both types of dialogue.

The goal of information-seeking dialogue is the transfer of some information from the one party to the other. One familiar kind of example is the celebrity interview, where an interviewer asks a celebrity questions designed to reveal information that would be of interest to the viewers. Another kind of information-seeking dialogue that is becoming more and more familiar to all of us is that of using a computer retrieval system to search through a database. Even though the one participant is a computer program, the sequence of questions and replies can insightfully be viewed as what we call a type of dialogue. Computer science is now in fact following this usage, where a software program is described as an "agent" that can engage in different kinds of dialogue, like negotiation, with a user of the system. This branch of AI is called multi-agent systems (Wooldridge and Jennings 1995).

While persuasion dialogue is directed toward finding out whether a proposition is true or not, deliberation is directed toward actions and its purpose is to find the most prudent course of action from a given set of choices available in a particular situation. A formal model of deliberation constructed by Hitchcock, McBurney, and Parsons (2001) shows the stages of this type of dialogue and gives rules governing each stage. The confrontation stage of deliberation is set by a dilemma, a given situation in which only two (or some small number of) choices of how to proceed are available, and the agent has to decide to take the one option or the other. The kind of reasoning typically used in a deliberation is called practical reasoning, or what Aristotle called practical wisdom (*phronesis*). Practical reasoning is a goal-directed, knowledge-based, action-concluding kind of reasoning in which an agent is aware of its external situation, and is also aware of the consequences of its actions as they affect that situation. Practical reasoning is a dynamic, case-based kind of reasoning that changes with incoming information, and typically uses defeasible argumentation of a kind that is subject to default occasionally (Clarke 1985). Public deliberation is a particular kind of deliberation that is informed by media events. Daniel Yankelovich divides the public deliberation type of dialogue into seven stages (1992, 24). First, people become aware of the existence of a problem. The problem is practical in nature, requiring some form of action. Then a sense of urgency about doing something to solve the problem develops. Policy makers begin to offer proposals for change. At this stage, resistance to change arises as people become aware

of difficult tradeoffs. Good and bad consequences of various ways of solving the problem are cited in arguments. People wrestle with the tradeoffs, trying to reconcile the conflicting arguments. Then people reach an intellectual resolution on what to do. After the decision has been made, people emotionally come to accept the resolution of the issue. Public opinion is often measured by public opinion polls. But the problem with these polls, according to Yankelovich (1992, 25) is that a poll is only a snapshot of a single moment in a long process of public deliberation. The media like to emphasize new and exciting issues. Hence they too often emphasize stages one and two, where a new issue is formulated. Thus the media view of public deliberation is often static and artificial. Public deliberation, according to Yankelovich, is better seen as a dialogue, with several distinct stages. The issue is not only posed, but is discussed and resolved by a dialogue.

Eristic dialogue is an agonistic or adversarial type of dialogue where each party hits out at the other party, and tries to humiliate him, or make him look foolish or incompetent. The most familiar subtype of eristic dialogue is the quarrel. In the quarrel, both parties have deep grudges or complaints that they have harbored for a long time, of a kind that would not be appropriate to express overtly in normal, polite conversation. But the quarrel suddenly "bursts out" on some provocative occasion, and both sides "spill their feelings out." Typically, the conversation lurches from one topic to another, and the most common type of argumentation is the *argumentum ad hominem* or personal attack type of argument. Relevance, of the kind necessary in a persuasion dialogue for example, is not much in evidence in the quarrel. A domestic quarrel, for example, may start out with a dispute about one party's failure to take out the garbage, but then suddenly the subject may change to concentrate on some annoying mannerism of the one party that is unrelated to the garbage issue.

Initially, the quarrel doesn't seem to have anything to do with logic at all, and modern logic has pretty well ignored it. But the quarrel is extremely important in studying many of the informal fallacies—like, for example, the *ad hominem* fallacy mentioned above. Both Plato and Aristotle however, were very well aware of eristic dialogue and the importance of it in studying sophistical reasoning. Both had a strong apprehension about the degeneration of what they called dialectical argument (a productive kind of argumentation) into "antilogic" or sophistry, representing a kind of counterproductive argumentation that can be used to deceive people in virtue of its superficial resemblance to dialectical argumentation. At any rate, eristic dialogue is an important type of dialogue to be aware of, even if the lessons of it are mainly negative.

The classification of dialogue into the six basic types cited above is not, in any sense, complete. But starting with these six types, other familiar kinds of

dialogue exchanges where argumentation is used can be classified as mixed types. For example, the forensic debate, of the kind often organized by college debate teams, can be classified as a mixture of persuasion dialogue and eristic dialogue, organized as a contest, with rules and judges. Political debate, of the kind that takes place in a legislature or parliament according to rules of procedure moderated by the "speaker of the house," can be viewed as a kind of persuasion dialogue that also has eristic elements.

Another phenomenon that is important to know about is the *dialectical shift*, or change of context from one type of dialogue to another during the same sequence of argumentation. For example, the making of a threat during a persuasion dialogue (an inappropriate type of move in that type of dialogue) may indicate a dialectical shift to a negotiation type of dialogue. Dialectical shifts are indicated by linguistic clues in the discourse in a case. Not all dialectical shifts are illicit. For example, in a parliamentary debate, the dialogue may shift from persuasion dialogue on some issue, like a debate on a particular housing bill, to an information-seeking type of dialogue, where information about the current costs of housing is brought in. The shift in this kind of case could help the persuasion dialogue by making it more informed on the particulars of the issue. Some shifts from persuasion dialogue in political discourse may also contain negotiation dialogue mixed in with the discourse.

The dialectical shift is particularly important in legal argumentation in a trial. In a trial, an attorney's argument may be fundamentally persuasive in nature. But when that attorney examines a witness, presumably she is trying to extract information of a factual nature from that witness. A witness giving eyewitness testimony, for example, is supposed to be presenting information to the court. Or an expert witness is supposedly presenting the knowledge in her field that is relevant to the case. Within the persuasion dialogue, in such a case, there will be intervals of information-seeking dialogue. But such cases of witness testimony are even more complicated. When an attorney cross-examines a so-called hostile witness, for example, she is doing more than just extracting information by asking factual questions. She is probing critically into the testimony of the witness, and perhaps even attacking it. In some cases, she could even be using *ad hominem* argumentation to try to impeach the witness, attacking his credibility. What type of dialogue is involved in this use of argumentation?

6. PEIRASTIC DIALOGUE AND EXETASTIC DIALOGUE

In *On Sophistical Refutations* (165a40–165b12), Aristotle writes that there are four kinds of arguments used in discussions, and then he adds a fifth kind that

has been treated in the *Analytics*. The four kinds are didactic arguments, dialectical arguments, examination arguments, and contentious arguments. The fifth kind of argument is called demonstration. Didactic arguments are used in teaching. Dialectical arguments are those that, "starting from generally accepted opinions *(endoxa)*, reason to establish a contradiction" (165b4–5). Examination arguments *(perastikoi logoi)* are "based on opinions held by the answerer and necessarily known to one who claims knowledge of the subject involved." Peirastic, or examination arguments, are "fitted to test someone's alleged knowledge and are based on the views held by the respondent" (Nuchelmans 1993, 37). Contentious arguments *(eristikoi)* are "those which reason or seem to reason from opinions which appear to be, but are not really, generally accepted" (*On Sophistical Refutations*, 165b8–10). Finally, Aristotle mentions demonstrative arguments (165b9–11), only telling us that he has treated them in the *Analytics*. He adds that dialectical and examination arguments have also been treated by him elsewhere.

Peirastic dialogue is a type of verbal exchange between two parties, one of whom is an expert in a skill or domain of knowledge, and the other of whom is a layperson (nonexpert) in that field. Peirastic dialogue is a subspecies of information-seeking dialogue. The basic purpose of a peirastic dialogue is for the layperson to get some kind of information from the expert. Generally this information is conveyed in the form of advice on how to do something, or in the form of information on whether a particular proposition is held to be true or false in the specialized domain of knowledge in which the one party is an expert.

Another key characteristic of peirastic dialogue is that is consists of a mixture of arguments and explanations. When an expert delivers an opinion, in response to a question put by the other party, the expert is supporting that proposition as true, or accepted as true in the field, and supported by good evidence of the knowledge in the field. So this kind of speech act can be seen as a kind of argument. Whenever a third party quotes such a report of an expert opinion, and uses it to back up their own argument, this kind of argument is called the appeal to expert opinion. This type of argumentation is known in logic under the heading of the *argumentum ad verecundiam*, often called the appeal to authority. But not all the speech acts in peirastic dialogue are arguments. Many of them are explanations.

A highly typical form of peirastic dialogue is the kind of case in which a layperson consults with an expert and asks for advice on how to do something, or what to do in a given situation. For example, I might consult with a financial adviser on whether to take early retirement or not. She may present certain facts about my pension, about how much my income will be if I retire, and so

forth. She may also give me advice on what to do about taxes, applying for government pension benefits and so forth. During the conversation, I will ask her a lot of questions that are requests for explanations. She will then try to explain to me, in clear layman's terms that I will understand, all kinds of technical things about tax laws, clauses in the pension, and so forth.

Another typical case of peirastic dialogue is a phone-in radio program in which callers who are trying to do home renovations or repairs ask an expert, a man who has had many years of experience as a building contractor, to give them advice on specific problems. The caller can ask a question, or pose a problem, and the expert tells them what to do, or what not to do, to get the job done. Often he will tell them to consult with another expert, like a plumber or electrician. Sometime he will give them specific advice on what to do themselves, and warn them about certain things they should not do. Sometimes he puts forward argument or presents opinions, but much of the time what he is doing is offering explanations. Much of the dialogue takes the form of the expert presenting an explanation and the caller asking questions about aspects of the explanation he does not fully understand.

Peirastic dialogue can have several different purposes. In addition to the purposes already described above, someone can engage in a peirastic type of dialogue with an expert to test out that expert, to see if she really is an expert in a field, or to see how credible she is as an expert. Of course, since the questioner is a layman, his ability to test out the supposed expert in a specialized domain is limited by his own lack of skill and knowledge. But in some instances, nonexperts can become quite skilled in this kind of dialogue exchange.

Cross-examination of an expert witness by an attorney in a trial is an important form of peirastic dialogue. Generally, the attorney is not herself an expert in the field in question—for example in ballistics, medicine, or DNA technology. Nevertheless, some attorneys do gain quite a bit of knowledge of these fields through their legal experiences of having to deal with evidence of these kinds, and so they can become sophisticated in knowing exactly what questions to ask, and how to handle the answers.

Some pessimists would say that peirastic dialogue is impossible or hopeless, because the questioner is ignorant of the specialized technical knowledge needed to grasp an expert's view of a matter. They would despair about the possibility of having a successful peirastic dialogue. This skeptical point is valid, but the problem is that it is necessary to engage in peirastic dialogue in order to survive, and do well in all kinds of daily activities. For example, you go to your dentist. She tells you that you need a root canal. You have to try to question her to find out what this is, and why she thinks it is required. If it is expensive, and there are some doubts in your mind about whether you really

need it, you might be well advised to go to a second (independent) dentist, and put the question to him. Whatever you do, you are going to have to engage in a lot of peirastic dialogue with experts, even though you yourself are not an expert, if you want to stand a chance of steering your way through life.

In answer to the pessimist then, it needs to be pointed out that while peirastic dialogue is often difficult, it is necessary if one is to have a good life that is not constantly foundering on difficult problems that cannot be solved without the help of experts. The other part of the reply to the pessimist is to cite the cases of lawyers who, although they are not medical or technical experts, do learn to handle questioning these experts quite well in a courtroom setting. The lesson is that although it may not be easy to engage in peirastic dialogue with experts, it is a skill that can be learned, and it is possible to do it well and successfully in some instances.

Two most important skills in peirastic dialogue are learning what kind of question to ask, and learning to ask the right question at the right time. Among the important kinds of questions are how-questions, yes-no questions, and why-questions. There are two different kinds of why-questions. One kind asks for an explanation, while the other asks for a justification. The second type of why-question is a request for an argument, based on premises that can be used as evidence to prove the proposition that was queried. Questions in peirastic dialogue are paired with replies in a chain of questions and replies that makes up a connected sequence. What is important is knowing when to ask the right question at the right place in the sequence. Putting together an abstract modeling of such a sequence of questions and replies in a dialogue exchange results in what is called in Walton (1989, 67) a profile of dialogue. A profile of dialogue is an abstract model of locally connected sequence of moves in a dialogue that represents the argumentation in a small part of the dialogue as a whole. The profile of dialogue gives you a kind of picture of the localized or immediate context of use of a question in a longer sequence of dialogue moves. Situating a question or a reply within such a localized sequence in a given case is a valuable tool for the analysis and evaluation of questions.

Socrates, especially in the earlier Platonic dialogues, used the so-called elenchtic method of questioning a respondent on big question like "What is justice?" by breaking the initial question down into a smaller, more localized question, and then following up this localized question with a sequence of related questions, based on the respondent's answers to the earlier questions in the sequence. Quite often, through such an elenchtic sequence, the answerer is trapped in a contradiction, or in some other kind of problem, and then this result of the questioning is found to have a place in the wider network of argumentation in the dialogue. This elenchtic technique as used in the Platonic

dialogue was studied by Robinson (1953). It is clear that the Greek philosophers in particular were not only aware of peirastic dialogue as a distinct type of activity. They were also aware of the importance of questioning in this type of dialogue, of techniques of linking questions and replies into ordered sequences, and of the difficulties in peirastic dialogue. There is also another important type of dialogue in legal argumentation that traces it roots back to Greek philosophy.

The Greeks were well aware of the inherent difficulties in the kind of situation in which a layperson in a given field of knowledge tries to question an expert in that field, in order to get guidance or advice on how to proceed on some matter. The basic problem is that if, as we suppose, the questioner is a layperson, he is limited by his lack of expertise to judge whether an answer given by the expert is correct or not. Sextus Empiricus, in *Against The Logicians* (1933b, 29–31), cited the following dilemma, attributed to one Anacharsis of Scythia, a philosopher of the fifth century B.C. The original dilemma is presented in Walton (1997, xiii), but a comparable version can be put in the following form.

> Who is to be the judge of skill, the expert or the nonexpert?
> It cannot be the nonexpert, for he lacks the skill.
> It cannot be the expert, for his skill makes him a biased judge.
> Therefore, nobody can be the judge of skills.

This dilemma poses the basic problem very well, especially in its first premise, which expresses the hardest part of the problem. Whenever a nonexpert questioner tries to judge the pronouncement of an expert, he will always be reduced to making a guess, or taking what is said on faith. As nonexpert, he cannot himself use the knowledge in the field in question as his basis for determining whether the proposition in question is really true or not. For only an expert would be in a good position to collect and assess that evidence, and to draw the right conclusions from it.

Other dimensions of the problem are revealed in the *Charmides* (170a2–171b8), where Plato considers the problem of a dialectician, that is, a layperson questioner, trying to examine a physician on questions of health and disease. The problem is that nobody really understands these questions except a physician. Only a physician who has the required medical skills can say with any kind of knowledge whether a particular proposition about health or disease is true or false, or can be said to be based on good evidence. The problem is that the concept of evidence here is tied to knowledge and skills in a particular discipline. So it is difficult for someone outside a given discipline to assess claims that fall into the subject-matter of that discipline. On the other hand, from a

practical viewpoint, we often do have to ask a physician for advice, and then to draw the right conclusions on how to act on that advice. So we can't escape the problem by just giving up in despair, or taking the skeptical view that as a layperson, you can't draw any conclusion at all, in such a case.

In fact, however, in the Platonic dialogues, Socrates often does quite well in cross-examining experts, confounding them with contradictions and other logical difficulties found in their opinions. Socrates himself does not profess to be an expert, and of course, professes Socratic ignorance, claiming that the only knowledge he has is that he doesn't know anything. The experts, on the other hand, who profess knowledge, often wind up having to admit, in the Platonic dialogues, that they don't really know what they thought they did. Socrates' peirastic success in questioning the experts in the dialogues should be quite encouraging to those who despair about the likelihood of having much success in this activity.

A description of the nature of exetastic argumentation can be found in the *Rhetorica Ad Alexandrum* (Anaximenes (?) 1946, 1427b12–1428a17). Exetasis is described as "the elucidation of intentions, acts, and words which are contradictory to one another or to the rest of a man's mode of life" (1427b13–1427b14). Exetasis sounds somewhat similar to peirastic dialogue, because both involve an "elucidation" of the position of a participant who is being examined. Both kinds of dialogue involve argumentation, but also appear to involve something else that is more like explanation than argument, called "elucidation." But an exetastic exchange seems to be even more of a critical examination of the other party's position than does the peirastic exchange. The aim of exetasis is the finding of contradictions in the other party's position, and this aspect makes it sound like it could be quite critical, insofar as it probes for points in the other party's position where a contradiction can be pinpointed.

It begins to sound like the exetastic probe into someone's position is very much like a circumstantial type of *ad hominem* argument in which an inconsistency is found in the acts and words of the person attacked. In fact, exetastic dialogue could be described as being the part of the circumstantial *ad hominem* argument where the contradiction is identified and analyzed, prior to the second part, where the arguer's argument is attacked by attacking his credibility. A clear statement of the goal of exetastic dialogue seems to confirm this hypothesis: "He who is making an exetasis must try to discover whether either the statement which he is examining or the acts or intentions of the subject of his inquiry are in any respects contradictory to one another" (1427b14–1427b17). The method of exetasis is to look over the habits and way of life of the person who you are examining, to find the following kinds of contradictions (1427b17–1427b26).

1. Instances where he has been someone's friend, but then later has been his enemy
2. Instances where he has done anything contradictory
3. Instances of a discreditable tendency
4. Instances where he might act in such a way as to contradict his former acts
5. Instances where he has formed an intention that contradicts his former words

An exetastic examination involves quite a potentially large body of data from which its findings can be drawn. It seems you need to look at the whole body of available evidence on a person's life, past conduct, words, and intentions.

An exetastic probe almost looks hostile. After all, the aim is to find contradictions in the position, deeds, and words of some person. It looks almost like a kind of personal attack on that person, reminiscent of what is currently called "oppo tactics" in political strategy. What we are not told, however, is what the purpose of finding such contradictions is supposed to be. Is it to discredit the party investigated, ethically or politically? Is it to mount an *ad hominem* attack against that person, to discredit some argument he has put forward that you want to attack? We are not given any such secondary purpose. And in fact, it seems that the purpose of the extastic examination is just the finding and analyzing of such contradictions. There seems to be no secondary purpose, beyond that. What seems to be the case then is that the extetastic examination is just the finding of such contradictions by a process of probing and exploring a body of evidence. What the findings are used for is a separate question. It does seem that such findings could be used to mount an *ad hominem* attack against the person examined. And if this assumption is correct, exetastic examination would seem to correspond to the first stage of a circumstantial type of *ad hominem* argument.

7. RELEVANCE AND DIALECTICAL SHIFTS

One of the most important things about the dialectical perspective on evaluating argumentation is that relevance is now seen as contextual in just the following way. The same argument that might be relevant as used in one context of dialogue could be irrelevant when used in a different type of dialogue. Wigmore (1935, 8) presents an example that illustrates how dialectical relevance of the kind that is so important in legal argumentation is relative to a context of the dialogue

Case 5.1 When you and your friend have met to dine at the restaurant, and the attentive waiter lays before each of you a copy of the

> menu and the guest is concentrating upon the question "What to choose?," suppose that you, in your zeal for the horticultural topic just discussed with him, continue thus: "What proves that the Corona rose can be grown from cuttings in this climate is the testimony of four of my neighbors who did that very thing last winter!" Then might not your friend mildly protest, "I cannot listen to that testimony now, because the only issue before us is whether we are to consume a lamb chop or a porterhouse steak."

Wigmore (1935, 8) adds: "This situation is repeated daily in a thousand instances in trials" in which the judge refuses to hear evidence because it is not relevant. As Wigmore shows very clearly by citing this example of a logical judgement of irrelevance outside the legal framework, however, relevance in such a case, and in comparable legal cases, is dialectical in nature. Everything depends on what type of conversation your are supposed to be engaging in at any given point. The argument about rose-transplantation would have been relevant when that subject was being discussed by the two friends before the waiter arrived. But then there was a dialectical shift. The waiter arrived, and the issue was, from that point, whether to order the lamb or the steak. In this case, the dialectical shift could be described as a kind of interruption, practically necessitated by the arrival of the waiter. Thus, for practical purposes, the shift can be seen as legitimate. The horticultural dialogue can be resumed once the waiter has left, and nothing is lost. At the point when the waiter arrived, the rose-transplantation argument became irrelevant—dialectically irrelevant in the sense that it made no contribution to the deliberation dialogue on what to order. It was relevant in the context of the previous horticultural dialogue, but once the waiter arrived, another type of dialogue became the appropriate context of conversation, at least for the time being.

Each type of dialogue has an issue posed at the confrontation stage, and an argument is relevant in that type of dialogue if it bears on that global issue. A corollary of this pragmatic way of defining relevance has already been noted above—an argument can be relevant in one type of dialogue, but might be irrelevant in another type of dialogue. For example, as observed above, an argument that appeals to a threat might be relevant in a negotiation type of dialogue. But the very same argument could be irrelevant if it is used in a persuasion type of dialogue.

Relevance traditionally in logic was used as a wastebasket category to dismiss an argument as "fallacious" when no other reason could be found for rejecting the argument. The critic could always say that attacking an arguer's character

isn't going to really get at the truth of the matter. That claim might seem very reasonable if the presumption is that the dialogue we are supposed to be engaged in is a scientific or philosophical discussion of some impersonal issue, like atomic physics or the existence of matter. But suppose the context is that of a trial in which everything depends on the testimony of a single witness who has a record of lying in the past. In such a case, we have to look at the whole trial as a persuasion dialogue, and look at the importance of the testimony of this witness in that context. Then we have to consider the place of the exetastic dialogue in which the cross-examining attorney questions the credibility of the witness, impeaching the character of the witness by using an *ad hominem* argument alleging that the witness is a liar. In this dialectical context, it can be argued that the *ad hominem* argument of the attorney is relevant. Whether or not the argument is relevant in such a case needs to be evaluated in two steps. The first step is to judge the place of the argument in the context of the given trial. The judgment here is one of legal relevance. But second, at an even deeper level, the argumentation in the trial (assuming it is in the argumentation stage) needs to be seen as a critical discussion of an issue, and the particular argument in question needs to be judged as dialectically relevant or not in that critical discussion. The first step is one of evaluating legal relevance, while the second step is one of evaluating dialectical, or what might be called logical, relevance.

Already lawyers will wonder how dialectical relevance in a critical discussion is related to the kind of legal relevance that figures so prominently in the rules of evidence. It is clear that there is a difference between the two kinds of relevance. In a critical discussion, an argument is relevant if it can be used to support or detract from the plausibility of one of the propositions at issue in the initial conflict of opinions. The notion of relevance defined in the FRE seems quite comparable, at first, but when the exclusionary clauses are introduced, these rules depart from dialectical relevance in ways that have already been briefly outlined in Chapter 1. It is clear then that there is a distinction between logical or dialectical relevance, on the one hand, and legal relevance, of the kind defined in the FRE, on the other hand.

As Twining shows (1985, 152–55), there has been a protracted debate on the difference between legal relevance and logical relevance. One way of characterizing the debate, Twining indicates (152), is to contrast the view, often attributed to James B. Thayer (1979), that relevance is a matter of logic, and not of law, with the view often attributed to Wigmore, that emphasizes the "peculiar characteristics of legal treatments of relevance." This debate is quite understandable philosophically, because it is based on a fundamental issue concerning the analysis of relevance. Is legal relevance basically the same kind of relevance appealed to in everyday conversational argumentation, with special rules added

on, or is it an altogether different kind of relevance? The problem is that it is possible to have a theory of relevance for everyday conversational arguments, but when it comes to legal arguments, that theory won't work (at least without adding to it, or modifying it). The reason is that there are all kinds of special, artificial rules of procedure in a legal case that will be brought to bear in judging what is relevant or not. It seems then that logical relevance (generally) is one thing, while legal relevance is something else again. But is legal relevance based on logical relevance or not?

Wigmore took the view that there is a "probative science" he called "the principles of proof" underlying, but independent from, what he called "the artificial rules of procedure" in the law (1913, 1). This probative science, a method of evaluating how claims are proved or disproved by evidence, is presumably not a strictly legal science. Instead, it corresponds to what is now called informal logic or argumentation theory, a kind of logic or method of evaluating arguments that can be applied to attempts to prove conclusions in specific cases. According to Wigmore, this logical part of the study of evidence has been "virtually ignored."

> The study of the principles of evidence, for a lawyer, falls into two distinct parts. One is proof in the general sense—the part concerned with the ratiocinative process of contentious persuasion. . . . The other part is . . . the procedural rules devised by the law, based on litigious experience and tradition, to guard the tribunal (particularly the jury) against erroneous persuasion. (1)

The second part has "loomed largest" in legal studies while the other part has, wrongly, in his view, been left to chance. For Wigmore then, there is a logical or principled study of the science of proof, in the general sense, underlying legal rules of procedure that determine matters of evidence in law, like the judgment of when something is relevant in a case or not. Since it has generally been held doubtful by legal scholars whether there is some kind of informal logic underlying legal principles of argumentation in trials and legal cases and disputes, Wigmore is in a minority position. This hypothesis is confirmed by Twining, who writes that Wigmore has been criticized for purporting to distinguish between "logical relevancy" and "legal relevancy," and even of "sowing unnecessary confusion" by purporting to make such a distinction (1985, 153). In the first volume of Wigmore's great work on evidence edited by Peter Tillers (Wigmore 1983), the great controversies on the issue of logical and legal relevance are chronicled. This controversy is still alive, and has not been resolved by legal scholars. Understandably perhaps, there is suspicion on the part of

many that legal relevance can be clarified, explained, modeled, or justified by appealing to an underlying notion of logical relevance. It can be assumed then that the question of whether a separation can be made between legal relevance and some kind of underlying logical relevance is controversial, and is subject to a good deal of skepticism. The issue is so controversial and so deeply significant for evidence law and legal logic that it is doubtful whether it can be fully resolved here. But significant steps are taken below to throw light on it. In Section 10 of Chapter 5, it will be shown that logical relevance, to be useful as applied to legal argumentation, needs to be modeled dialectically. Then in Section 7 of Chapter 6, the great controversy about logical and legal relevance arising from Wigmore's theory of evidence will be discussed. Finally, in Chapter 7, a method for judging dialectical relevance in persuasion dialogue will be presented.

8. THE FAIR TRIAL AND THE WITCH-HUNT

The hypothesis put forward here, supporting the view of Feteris (1999), is that the argumentation used in a fair trial is best modeled logically on the framework of the subtype of persuasion dialogue known as the critical discussion. As noted above, the goal of a critical discussion is to resolve a conflict of opinions by means of using logical reasoning that brings forward and tests the strongest arguments on both sides. In persuasion dialogue generally, the dialogue can be successful even if the conflict is not resolved. But in the legal trial, a forcing of the decision is effected by the initial distribution of the burden of proof at the confrontation stage. What should provoke a trial, in our system, is an allegation that cannot be dealt with in some process of dispute resolution other than a court, an allegation of a kind that makes the case go on to trial.[3] In a criminal case, the standard of proof required is proof beyond a reasonable doubt, and this burden is placed on the prosecution. The defense, to win, has only to put the prosecution's attempt to prove into doubt. So the prosecution's proof either meets the standard or it does not. If there are doubts, the proof of guilt is judged to fail. Hence the system is designed to come to a conclusion, to resolve the initial conflict of opinions one way or the other. So the trial is successful only if it fulfills this goal. Otherwise it is a "mistrial."

It seems a reasonable hypothesis then that the fair trial can be modeled as a critical discussion, a type of persuasion dialogue. There are two sides, the

3. The reality may be quite otherwise. The plaintiff might be able to resolve the matter, but prefer to litigate. But trial could be precluded in many instances if litigants would explore other methods, like mediation or negotiation, that could resolve the dispute before trial.

prosecution and the defense, and the prosecution has a thesis to be proved. The defense must oppose this attempt at proof. So far so good. The trial does seem to be a kind of persuasion dialogue, in this respect. But in another key respect, the trial is different from the critical discussion. In a critical discussion, each of the two arguers tries to persuade the other to accept his or her thesis. Their efforts at persuasion are directed at each other. But in a trial the two arguers aim their efforts of persuasion at a third party—the trier, which may be a jury or judge. So here is a fundamental difference between the persuasion dialogue generally and the fair trial. It is up to the jury to decide the outcome in a trial. And the opposing attorneys can and should use any arguments that will persuade the jury to accept their contentions—at least, any arguments allowed as relevant, or not otherwise excluded by the procedural rules for the trial, as ruled on by the presiding judge.

It seems then that while the trial does have some features of the persuasion dialogue, it also has some distinctive features that make it different from the model of the persuasion dialogue. The main difference is that three parties are involved, and not just two (Feteris 1999, 174). The other differences concern the way that the third party decides the outcome. The jury deliberates, and then decides, on the basis of that dialogue, which side won and which side lost the trial. So the fair trial is more complicated in some ways than the persuasion dialogue. The fair trial involves persuasion, but much more as well.

The best way to come to understand the logical features of how the fair trial should work as a normative framework in which arguments are evaluated is to contrast it with an opposing normative structure of dialogue called the witch-hunt. The witch-hunt has ten defining characteristics (Walton 1996c).

1. Pressure of social forces that drives the argumentation forward powerfully
2. Stigmatization of the accused, making a defense difficult, or even impossible
3. Climate of fear
4. Resemblance to a fair trial
5. Use of simulated evidence (as opposed to real evidence)
6. Simulated expert testimony
7. Nonfalsifiability characteristic of the simulated evidence
8. Reversal of polarity (or shifting of burden of proof, meaning in a criminal trial that the accused would have the burden of proving his innocence)
9. Nonopenness, meaning that the argumentation is one-sided, and the prosecution argument is not really open to refutation
10. Use of the loaded question technique.

These characteristics form a cluster of properties such that if enough of them are present in a given case of a tribunal, the tribunal may be classified as a witch-hunt. Numbers 1, 2, and 3 are the initial conditions that make the witch-hunt possible; 4 gives the procedure apparent legitimacy. Numbers 5, 6, and 7 describe the "evidence" used to support the argumentation. In the inquisitorial witch-hunts in the Middle Ages, the accusation made tended to be of a fuzzy kind, like "being in league with the devil," a charge that is difficult or impossible to refute by empirical evidence. But evidence to support the accusation was not hard to come up with. Any kind of indicator, like being old or smelly or "weird," could be used as evidence to support the accusation. Something called "spectral evidence" was visible only to the accuser. Numbers 8, 9, and 10 are the methods used in the evaluation of the evidence in the witch-hunt.

The Inquisition is not really a single example of a witch-hunt. It is a kind of mythic concept that covered many (typically) religious kinds of tribunals over many centuries in which heretics were punished on the grounds that they were nonbelievers in church orthodox dogmas, going as far back as the fourth century. But many specific witchcraft trials could be cited, including those in the European witch-craze of the sixteenth and seventeenth centuries. Other examples of witch-hunts that can be cited are the Salem Witchcraft trials of 1692 and the McCarthy tribunals of the 1950s. In all these cases, we have what looks on the surface like a fair trial. But it was in fact a kind of pseudo-trial that was designed to support the interests of a well-organized group who used the procedure as a method of enforcing adherence to a cause riding on a groundswell of public enthusiasm and fear. By forcing the accused to either "recant," "see the light," and become "re-educated," or face a severe penalty, like being burned at the stake—or nowadays, losing one's job—the witch-hunt was used as a device to influence the balance of power during a time of turbulent social conflict.

In a fair trial the accusation—the charge to be proved or disproved—must be of a kind that can be supported or refuted by real evidence. So the notion of evidence is central to the idea of a fair trial, and the fair trial must be an open sort of procedure that gives both sides an opportunity to bring forward the relevant evidence to support its side. It must be open, in certain respects, and two-sided, even though it should not be open to all arguments. The fair trial can be thought of as a kind of persuasion dialogue in which both the proponent and the respondent attorneys, the prosecution and defense, have a designated proposition they must prove, to win or be successful in the disputation. But there are a lot of other rules and requirements laid over this underlying framework. What both parties must use for this purpose is called "evidence" in law, and that is defined by rules of evidence, which vary, from place to place.

To sum up, the fair trial can be thought of in two ways. Positively, it can be thought of as a kind of persuasion dialogue. But it is not exactly the same as a persuasion dialogue, because there are three distinctive parties involved. Negatively, the fair trial can be thought of as not being a witch-hunt. To put this characteristic in a positive way, the fair trial must be an open and balanced forum for the introduction and evaluation of evidence. The defendant must have a fair chance to give evidence of a kind that could be used to show that the allegations of the accuser are not supported by a strong enough argument of the kind that should be needed to prove the accusation. The first characteristic of the fair trial is that it involves the use of logical argumentation in which the contentions of two sides are opposed. The second characteristic is that there needs to be a forum in which both arguments can be heard and fairly judged. The rights of both sides to put forward the best case they can needs to be respected. In particular, the trial should not just be an unbalanced witch-hunt. The defendant should have some real possibility of finding and presenting sufficient evidence to persuade the trier that the contention of the other side has not been proved.

9. A DIALECTICAL THEORY OF STATUTORY INTERPRETATION

There has long been a tradition in law of using maxims of statutory interpretation to help guide decisions on how to interpret statutes and to justify such interpretations. The maxims have often been criticized in the past, but judges continue to cite them in deciding cases. As examples of these maxims, several of the most interesting are quoted below from Geoffrey Miller (1990, 1184–90).

1. The meaning of a statute is to be looked for, not in any single section, but in all the parts together.
2. In all cases of statutory construction, our task is to interpret the words in light of the purposes Congress sought to serve.
3. Interpretations which would produce absurd results are to be avoided if alternative interpretations consistent with the legislative purpose are available.
4. A particular word or phrase should have the same meaning when used in different parts of the same statute.
5. In case of ambiguity, criminal statutes are interpreted in favor of the accused. Where several readings of a statute are equally plausible, the court's duty is to find the interpretation which can most fairly be said to serve the general purposes that Congress manifested.

6. A more specific statute will be given preference over a more general one, regardless of their temporal sequence.

One can appreciate why these maxims of statutory interpretation are so controversial in law. Interpretation of a text of discourse is inherently subjective. Inferences about what a text can be taken to mean, especially in relation to an issue not specified exactly by explicit assertions in the letter of the text, are, at best, plausible inferences. In law, arguments about what a statute should most plausibly be taken to mean are hotly contested in court cases. So any inference drawn may be quite controversial. The evidence to back it up or argue against it is likely to be conjectural in nature. Also, such inferences in controversial cases are typically based on a lack of sufficient evidence. If a statute explicitly says some type of act is permitted, then there is no doubt that this type of act is permitted, according to the clear interpretation of the text. The problems of interpretation become significant when the statute fails to explicitly mention some type of act, even though wording in the statute seems to suggest by extrapolation that it could be extended to apply indirectly to that type of act.

This type of problem has its controversial aspects and has an apparent intractability using rigid deductive logic as the only type of reasoning that can apply. It seems like a dangerous area. Guessing what a text of discourse can plausibly be taken to mean could be fertile ground for the committing of fallacies, distortions, and rationalizations. And yet there is a way of approaching the problem using logical resources. This very kind of problem is already familiar in the dialectical literature on fallacies within systems of dialogue logic. The problem is one of determining the commitments of an arguer in a given case, based on the text of discourse of how the arguer has gone on record in contributing to a dialogue in past moves. The commitment rules of a dialogue are, in some instances, quite clear. If a participant goes on record as asserting a particular proposition, then that proposition is inserted into her commitment set. But in many cases, a plausible inference needs to be made, on the basis of the textual evidence. Suppose, for example, that George has gone on record as arguing for many communist causes in a dialogue. But then another issue comes up that has not previously been discussed, like whether the Post Office should be privatized or run by the government. Suppose that George doesn't actually come out and say that in his opinion, the Post Office should be run by the government. But suppose he does give various arguments to the effect that private enterprise would not do as good a job of running a postal service as the government. And suppose he argued that if private enterprise took over, workers would lose jobs and benefits. Given what George has said before, and how he

has just argued, it is reasonable to assume that he is committed to the proposition that the Post Office should be run by the government. But George has not actually said that, so our attributing this commitment to him is just a plausible conjecture or interpretation. Of course, if we want to know for sure, we can always ask George. But in the case of a written document like a statute, the authors are not around to be questioned. We have to draw inferences from the given text, based on what is implied by the commitments expressed in that text. The problem is one of commitment in dialogue. Textual evidence can be used, in context, along with information about the type of dialogue the speech partners are engaged in, and the rules for that type of dialogue, to back up or challenge interpretations that supposedly represent the implicit commitments of a participant. The problem is critical not so much when a commitment has been explicitly made, and not retracted. Such a case is called one of light side commitment, because the actual, explicit commitment is on full view to all participants in the dialogue. The problem is critical with respect to so-called dark side commitments, where the commitment must be inferred contextually and indirectly from what was said by the participant to whom the commitment is attributed. Light side commitments and dark side commitments need to be treated differently. Light side commitments are inferred indirectly by supposition. But that does not mean that such an inference is whimsical. Evidence can be used to back it up or challenge it. The evidence is drawn both from what was said in a dialogue, and from what was not said.

What kind of dialogue is supposedly taking place when a court is trying to arrive at a ruling on the basis of a statute passed by Congress? It would seem that the Congress was facing a problem of some sort, and trying to make a ruling that would enable courts and government agencies in the future to deal with problem according to certain principles of philosophy and good government. But the members of Congress are not engaged in an actual dialogue, by means of question and reply turn-taking, with the government agencies who will act on the ruling and promote it. The legislators have to take great care in writing the text of the document to cope with this difficulty. They are trying to achieve a level of generality. That generality will leave open the need for judgment in the future on how to deal with specific new developments that will occur, but that the statute writers cannot realistically anticipate in every detail. So when judges or citizens try to apply the statute, there will be many gaps, and controversies will arise on how the gaps should be filled, to best keep in line with the general direction that the statute seems to take. This need for gap filling by plausible interpretation of the written word is not a bad thing, however. It should not be cause for throwing up our hands and saying, "It's all

subjective, and logic is no use at all here." Instead, one needs to realize that this indeterminacy is a vital part of the legal process of law making and law interpretation that is the basis of the most significant aspects of legal reasoning.

Miller's theory (1990, 1196) is that when the legislature makes assertions in the form of a statute, it creates a dialogue, or what Grice called a collaborative conversational setting (1975), between the legislature and its audience, composed of courts and citizens. For example, one maxim of statutory interpretation is the principle *expressio unius est exlusio alternis*, meaning that the expression of one thing signifies the exclusion of other things. Miller cites the following case (1990, 1195). Suppose a statute states a ruling that nobody under eighteen may operate a motor vehicle on a public street. A question of interpretation then arises. Does this ruling imply that someone under eighteen may not drive a tractor in a farmer's field? The *expressio unis* principle suggests that an answer can be drawn by plausible inference. By expressly limiting the prohibition to public streets, the statute creates a presumption that can be drawn by plausible inference from what it said. It did not expressly forbid driving of motor vehicles on places other than public streets. Therefore by default, the statute may be taken to allow the driving of motor vehicles by sub-eighteen-year-olds on places other then public streets. A farmer's field is a place other than a public street. Therefore, the statute, by default and by plausible inference, may be taken to allow an eighteen-year-old to drive a tractor in a farmers' field. This kind of case is yet another variant on Hart's famous case of the statute forbidding the driving of motor vehicles in a park, cited in Chapter 1. The fact that the legal reasoning in such a case can be analyzed using Gricean implicature has a lot of implications for legal argumentation. It tells us a lot about how legal reasoning is based on rules, and uses plausible reasoning to get from the statement of a general rule in a statute to a conclusion drawn about some particular case not explicitly covered by the wording of the statute. What is most interesting about Miller's theory of statutory interpretation is that it reveals how the context of dialogue of a given case is fundamental to this process of drawing an inference by default from a rule in a statute to a conclusion drawn by a court or a citizen on how to act in accord with the rule, as stated. According to Miller's theory, what justifies such an inference as a process of reasoning is not just the chain of inferences, so that each inference is deductively valid or inductively strong in a context-free calculus. What is important is the context of dialogue. Consider once again the Gricean postulates about giving information in a conversation. One said that a participant should not give more information than is required. Miller applies this conversational rule to the case of a statute that says, "All cats born on or after January 1, 1989, shall be vaccinated." Does this ruling apply to cats born before that date? Any reader

understands intuitively that it does not. As Miller puts it, "If your cat is born before January 1, 1989, and you do not vaccinate, you are in the clear as far as the law is concerned (but must answer to your conscience)" (1990, 1196). The Gricean postulate is invoked because the statute specified the date of January 1, and gave specific information citing an exact date. And yet the statute does not state any ruling specifically, one way or the other about vaccination before January 1. What implicature can be drawn about vaccination during this period? Since nothing is said requiring vaccination before that date, and since the date given is so specific, we can infer by implicature that the statute can be interpreted as not requiring vaccination of cats before that date.

Miller shows how the implicatures arising from the Gricean postulates can be subtle, giving rise to conflicting interpretations in some cases. He cites the example of the statute banning "cats, dogs and other animals" from a public park (1990, 1200), in relation to the question of whether a mounted policeman may enter the park. Since the horse is an animal, the plain meaning of the statute would bar the mounted policeman from the park. But consider the Gricean postulate that says that a participant in a conversation should not give more information than is required. The banning of all animals bans all animals, including dogs and cats. So why mention these specific animals at all? The requirements of the Gricean postulate can be met, however, by saying that the mention of dogs and cats does present additional information that is useful to the conversation exchange. It limits the application of the term 'animals' to animals that are like dogs and cats for some reason, for example, animals that are pets. This Gricean way of interpreting the statute is an instance of the statutory maxim of *ejusdem generis*, maxim 6 in the list above, because the specific references modify the general term 'animal.' But this interpretation is not the end of the story. We can still ask why the city council didn't specifically mention 'pets,' if the statute was meant to be applied to pets? For, using Gricean postulates of implicature, the city council is expected to communicate as much information as is available, unless they had a reason to leave such information out. All in all then, we have conflicting implicatures. It is a question of which implicature is stronger.

Those who have opposed the maxims of statutory interpretation have used just these kinds of examples of conflicting interpretations arising from two different maxims to argue that the maxims are full of contradictions. But Miller (1990) argues that cases of conflicting implicatures are quite normal. The Gricean postulates, very often, don't determine the univocal, or only possible, interpretation of a statute. They only provide a basis of evidence for interpreting a statute one way rather than another. There can often be good arguments for interpreting it another way, also based on Gricean postulates. It is fairly normal

to have such conflicts, in other words. These cases of conflicting plausible interpretations are the hard cases that lead to a need for adjudication. There can be good arguments on both sides. All the Gricean postulates do is to display the conversational structure of the inferences used in the reasoning, on both sides, to argue for the plausibility of one interpretation against another. The key thing is that, in a hard case, both arguments can be plausible. Each argument can be plausible relative to the body of evidence used to support its interpretation. That is just the nature of plausible argumentation. It is most useful when there is a conflict of opinions, and there are good arguments on both sides.

Posner notes that the maxims or so-called canons of interpretation have long been the subject of discussion in a large literature in law that has attempted to find some basis for grasping systematic reasoning used in statutory interpretation. The soundest criticism is not that the canons are wrong, but that they are "just a list of relevant considerations, at best of modest utility" (1990, 279). The problem is that the maxims of interpretation look useful, but as soon as you try to apply them to any real, problematic case, you see that they can be used on both sides of the case, producing conflicting interpretations. Also, the arguments on both sides turn on other relevant evidence, and on many strands of argumentation. The maxim may just be a way of justifying one or some of the inferences that are part of the argumentation leading to a plausible interpretation. But another maxim may lead to a plausible interpretation that is the opposite of the first one. These facts lead the critics of the maxims to dismiss them as contradictory. But all that is shown is that the maxims don't generally determine one interpretation as the ruling expressed by a statute. Nevertheless, the maxims are what give the argumentation in favor of a plausible interpretation its structure and justification as a chain of reasoning. From a logical point of view, what is shown is that such reasoning is based on dialectical postulates appropriate for collaborative conversation. In other words, the structure of the plausible argumentation used in interpretation of a statute, and the justification of the key inferences used in this argumentation, is to be found in the rules of dialogue for the collaborative communicative exchange. The interpreter of the statute needs to be seen as engaging in a kind of communicative exchange with the statute writers. Posner (1990) sees the exchange as comparable to a military communication in which an officer higher in the chain of command issues an order to a subordinate soldier. The soldier must then figure out how to implement the order in a given situation. This analogy is very useful, not least because it shows how communication of a certain sort is involved in statutory interpretation. Communication is not the whole story. But it is the part that has been overlooked by logic in the past. And that is the reason why statutory interpretation has been seen as subjective, and not having a logic, or an under-

lying structure as reasoned argumentation. The Gricean model shows how the structure of this kind of argumentation is dialectical.

The big question is what type of dialogue is engaged in when a judge or citizen draws a conclusion on how to interpret a statute. It is not the same kind of dialogue that is typical of formal dialogue theories in which two parties take turns asking questions and replying to questions. The statute writers may all be dead, for example. They cannot take turns in a dialogue exchange of this typical sort. And yet, the interpretation of a statute does involve some elements of a dialogue in which two parties are attempting to collaboratively reason together for some purpose. By drawing out a conclusion representing a plausible interpretation of a statute, the interpreter is trying to use empathy to put herself into the minds of the statute writers. The writers were facing a problem that required some sort of ruling that would direct the future actions of the community in line with certain goals—for example, goals of democratic government like freedom. So the statute writers can be seen as engaged in a kind of deliberation, directed toward the future. The judge or citizen is also a member of the same community, and is trying to seek guidance or advice from the statute. Such guidance may not tell the judge or citizen exactly how to proceed. The statute may not say anything precisely, or give a ruling, about a new specific kind of situation or decision faced by the community now. But it may give guidance, laying out some relevant considerations in the argumentation needed to arrive at a new deliberation on how to proceed with this issue. The wording of the statute has this kind of guiding input into current deliberations. Thus a kind of advice-giving dialogue structure is involved. Two conflicting interpretations of what this advice should be taken to be may arise in a given case. There may be plausible argumentation on both sides. But part of the evidence on each side is drawn from an interpretation of what the statute presumably says.

In the past, the model of "legislative will" (Popkin 1988, 553) has often been applied to statutory interpretation. This phrase is taken to mean that a statute is a product of public deliberation, and not merely an aggregation of private interests. Building on this idea, William Popkin has postulated a collaborative model of statutory interpretation to show the kind of reasoning used by a judge when drawing a conclusion on the basis of interpretation of a statute. Popkin distinguishes two types of context important in the collaborative model (593). One is the statute's language surrounding the words to be interpreted. The other is the common understanding of language and uses of words which the statute writer and reader are likely to share. Another factor is the statute's purpose in the form of political values that explain why certain events are included or excluded from coverage in the statute (599). All these contextual factors are part of the evidence used to support or argue against a plausible interpretation.

According to the collaborative model of statutory interpretation, the judge who interprets a statute is engaging in a kind of collaborative dialogue with the writers of the statute, based on the wording, context, and purposes of the statute. The judge, according to the model, draws inferences based on not only the wording of the statute, but the context, of language use in the statute, based on what the statute includes, and what it does not include. In terms of dialectical argumentation, what the judge is doing is trying to determine what the commitments of the statute writers supposedly were, based on the evidence of the text of discourse, and what that text can be taken to be indirectly committed to by implicature. Such interpretations tend to be inconclusive. They can be plausible or implausible. But the important thing is that the plausibility of the interpretation can be evaluated from evidence based on the text and context of dialogue. Gricean postulates need to support key inferences in the chain of reasoning used to arrive at the conclusion that a certain interpretation is plausible or not. The key role of such Gricean postulates as applied to statutory interpretation demonstrates the dialectical nature of the legal evidence in this kind of legal argumentation.

10. ARGUMENTATION SCHEMES, FALLACIES, AND LEGAL LOGIC

An important aspect of relevance is the determination of the probative value of an argument in relation to the general claim to be proved in a case. At the initial stage of the presentation of the evidence in a trial, for example, it may be hard to judge whether some argument will turn out to be relevant in the end or not. Such a determination can only be made by projecting the argument forward, and asking how it could be used in a longer chain of argumentation that aims toward the claim to be proven, and affects its plausibility value. But what is important for the purposes of evaluating legal argumentation is dialectical relevance, meaning that something is relevant only if it contributes to a dialogue in which argumentation in a given case is taking place. In this dialectical sense, questions and other moves can be judged to be relevant or irrelevant, as well as arguments themselves, although very often it is arguments that one is centrally concerned with.

Judging dialectical relevance or irrelevance of an argument in a given case is always conjectural, and is a judgment that is very much a function of what the context of dialogue is supposed to be in a case. You have to get a grasp of how an argument is being used in context, judging from what you know of the context of the case. Of course, this context may not be completely known, or it may not be known at all, in some cases. Typically, the argument to be evaluated

may be in midstream. So to judge whether it is dialectically relevant or not, you (as a critic) have to try to extrapolate the argument forward. You have to estimate whether it has the potential to bring forward some evidence that would support (or at least be part of) a proof that would prove or disprove the claim on one side or the other of the issue. The argumentation must have the potential to bear on the conflict of opinions that it is the goal of the dialogue to resolve. In other words, the idea of dialectical relevance harks back to the ancient idea of Hermagoras and classical *stasis* (or *status*) theory. The idea was that in a dialogue there is a global issue, a pair of propositions that represents a conflict of opinions that is controversial. And a move in argument is relevant if it helps to resolve this conflict by bearing on one or the other of the propositions at stake in the dialogue. By 'bearing on' is meant that it can be used as a probative function over a chain of inferences to give a weight of evidence either for or against one of these propositions.

What do we mean when we say that to be dialectically relevant, an argument must "extrapolate forward" toward the goal of the global issue of a dialogue? This notion of extrapolating forward is based on the chaining together of inferences in a case where the chain can be seen as moving in a particular direction. This chaining of inferences, as Bentham and then Wigmore pictured it, is the linking together of a series of subinferences so that the conclusion of one inference also functions as a premise in the next one. The resulting sequence of inferences, as noted in Chapter 4, can be modeled using the technique of argument diagramming (Walton 1996a). According to this method, a graph, a kind of flow chart of the sequence of argumentation is constructed. In a dialectically relevant argument, the last proposition in the sequence is the arguer's thesis that was supposed to be proved in the dialogue as a whole. Hence dialectical relevance is a global and contextual notion that is a function of how an argument is used in a given case to make some point that is the right sort of point that is supposed to be made. What is important here is the probative function of the argument—how it could be used to prove something. Many different kinds of arguments can have a probative function.

In addition to the deductive and inductive types of inference usually featured in logic textbooks as representing the forms of argument, the argumentation schemes or presumptive forms of inference defined in Chapter 2 are vitally important. Presumptive reasoning is a form of argumentation that has to do with practical decisions in situations where exact knowledge is insufficient to yield a decisive solution to the problem. Presumptive reasoning is based on burden of proof in a dialogue, and is a defeasible kind of reasoning that is open to default and revision. The following list comprises the twenty-five presumptive argumentation schemes described in Walton (1996b).

1. Argument from sign
2. Argument from example
3. Argument from verbal classification
4. Argument from commitment
5. Circumstantial argument against the person
6. Argument from position to know
7. Argument from expert opinion
8. Argument from evidence to a hypothesis
9. Argument from correlation to cause
10. Argument from cause to effect
11. Argument from consequences
12. Argument from analogy
13. Argument from waste
14. Argument from popular opinion
15. Ethotic argument
16. Argument from bias
17. Argument from an established rule
18. Argument from precedent
19. Argument from gradualism
20. Causal slippery slope argument
21. Precedent slippery slope argument
22. Argument from vagueness of a verbal classification
23. Argument from arbitrariness of a verbal classification
24. Verbal slippery slope argument
25. Full slippery slope argument

This list is not meant to be complete. Many of these forms of argument were recognized by Perelman and Olbrechts-Tyteca (1969), and they cited many other forms as well. Actually, the identification and classification of these everyday types of argument, traditionally called "topics" (*topoi*), goes back to Aristotle's *Topics*, a book on dialectical argumentation that covers hundreds of these topics used in disputes. But the first modern treatment of argumentation schemes to present a useful account of these forms of argument was that of Arthur Hastings (1962). An account that is both comprehensive and useful is that of Manfred Kienpointner (1992).

These forms of argument are plausibilistic in an ancient sense well known to Plato, Aristotle, and other philosophers of antiquity, as shown in Chapter 4. The word 'probable,' often used to describe this kind of reasoning, has been misleading, ever since the advent of the science of statistical reasoning. Plausible reasoning (Rescher 1976) is default reasoning based on generalizations concerning what is normally the case (subject to exceptions) in a given situation. To say that something is plausible means that it seems to be the case, and therefore that it can tentatively be accepted as true, because it has a weight of evidence in its favor. But such a conclusion is warranted only provided that, in the larger body of evidence available, there is no stronger weight of evidence against accepting it. What has only recently been learned is that these familiar kinds of plausibilistic inferences do have definite forms as arguments.

It has already been shown in Chapter 1 how these presumptive forms of

inference are basic to evaluating everyday legal argumentation. For example, argument from testimony is a subspecies of argument from position to know. So is argument from expert opinion, another form of argument that looms large in evidence law, and in argumentation used in trials. The example of argument from expert opinion is typical of how these presumptive argumentation schemes work. Traditionally treated in logic textbooks as a fallacy, this form of argument is best evaluated in a given case by examining the question-reply sequence of how the expert's expressed opinion was used in a dialogue by a proponent to make a point to support her side of the case. What is important is to know the right critical questions to ask, and to observe how or whether they were asked and replied to in a given case. Lawyers are already familiar with peirastic and exetastic skills of questioning experts needed for successful cross-examination of an expert witness. The importance and legitimacy of appeal to expert opinion has also been emphasized in the use of expert systems in AI, and the application of this technology to all kinds of uses. At any rate, enough has been said to indicate the importance of presumptive reasoning in the chains of inferences that determine whether a given argument is relevant or not in a given case. Deductive and inductive reasoning have been so strongly emphasized in logic for over two thousand years that the pragmatic study of presumptive reasoning has been given little serious attention at all. Deductive and inductive logic cannot handle all valid or useful argument forms. They must therefore be supplemented by an applied logic of argumentation based on argumentation schemes, plausible reasoning, and conversational postulates for different types of dialogue.

The traditional informal fallacies are arguments that are quite often reasonable, as used both in legal contexts (Saunders 1993), and in everyday argumentation, but they tend to be arguments that are of a presumptive and defeasible sort that can, in some cases, be abused. As noted above, the fallacious cases of their use are those where the argument has been used to subvert or block the goals of a dialogue, instead of moving the dialogue forward. Prominent examples are the *ad hominem*, or argument against the person, the appeal to expert opinion, and various appeals to emotion, like the appeal to pity. These arguments can be reasonable and appropriate in some cases in legal argumentation, while in other cases they are irrelevant. In such cases, they can be powerfully distracting and prejudicial arguments that ought not to be considered relevant, and, if they have been used, need to be handled with care.

Now a different approach to relevance needs to be taken so that these arguments can be seen as legally relevant in many cases, even though, in a different context, they might rightly have been dismissed as irrelevant. The same *ad hominem* argument that might be rightly judged to be irrelevant in a scientific

proof could be judged to be relevant in a legal case, where character is seen as a legitimate part of the argumentation. Yes, the notion of relevance appealed to here is contextual in nature, and formerly, it would have been thought to be subjective in logic. But now, when plausibilistic argumentation is being evaluated with respect to how it has been used in a context of dialogue, a contextual (dialectical) evaluation should be seen as possible and appropriate. True, the evaluation is contextual, so that it can only be made within assumptions about what kind of dialogue exchange the participants in a given case are supposed to be taking part in. But still, based on such contextual assumptions, a useful evaluation of legal argumentation can be achieved. The contextuality and case-based nature of the evaluation is actually an advantage with respect to legal argumentation. No other form of logic will work, with much degree of usefulness, as the history of legal logic has amply demonstrated.

6

A PLAUSIBILISTIC THEORY OF EVIDENCE

This chapter presents a new approach to evidence theory that is quite different from the accounts of evidence usually given in logic textbooks and the other theories of evidence that have been put forward by analytical philosophers in recent years. The theory could probably be described as quite skeptical in nature, by present standards, and also probably quite permissive. It allows in quite a bit as evidence than might be by the more conservative views we are familiar with. Traditional conservative views base their notion of evidence on deductive and inductive logic. Such views consider scientific evidence to be the paradigm of evidence (or even as the only kind of evidence that is worth taking seriously). The theory of

evidence I present and advocate here, on the other hand, is called the plausibilistic theory because it is based on the ancient notions of plausibility, outlined in Chapter 4. The new theory is based on the ideas that certain propositions are plausible in themselves, and that certain other propositions can be inferred from these plausible propositions by plausible reasoning. These propositions can be called plausible, in the sense that they appear to be true, and there is no over-riding reason to think they are false. They are therefore acceptable as true (or at least as plausibly true) to a rational person, even though that acceptance is generally not unconditional, is tentative in nature, and is generally subject to qualifications and reservations. The plausibilistic theory of evidence is built around two assumptions. One is that initial propositions are accepted, by those who weigh evidence, as being plausible or implausible. The other is that inferences that themselves can be rated as plausible or implausible, can be drawn from these initial propositions. The ancient roots of this skeptical theory can be traced back to the reported sayings of Carneades, a philosopher who lived in the second century B.C. The new theory is also based on the new dialectical structure outlined in Chapter 5.

The new theory roughly says that something is evidence if it is drawn by plausible reasoning from initial impressions (appearances that seem to be veridical) of a (credible) person, and then used to gain rational acceptance of something that was in doubt. The theory can be seen as a development of Bentham's theory of evidence, in many respects. It is closest of all to Wigmore's theory of evidence (1913), in its use of probative weight and relevance as key features of evidence. As a pragmatic theory, it also shares some central features with the functional meaning of 'evidence' of Lyman R. Patterson (1965a), and appears to fit well with the analysis of the types of evidence distinguished by Patterson (1965b). It also shares some central features with the analysis of legal evidence presented by David Schum (1994). Although it is my opinion that the new theory of evidence could be used to give an interesting account of scientific evidence, as well as legal evidence, no attempt will be made here to support that claim. It is a controversial claim that has to be regarded as outside the scope of this book. Instead, the goal is to show that the new theory is a good theory of legal evidence. That said, however, because scientific evidence is surely one of the main forms of legal evidence, some remarks will have to be made about the nature of scientific evidence and its relationship to legal evidence.

1. COMPONENTS OF THE NEW THEORY

In the new theory, the collection and use of all evidence can be broken down into three parts or stages, so that the evidence itself is of three different kinds.

First, there is the stage where the evidence comes in, or is collected, or is otherwise made available to some person, group, or entity. This stage could be called the basis of the evidence, because it is the part of the evidence that all the other evidence is based on. It is often described as "the facts" or "the premises" in a case or an argument. It consists of a proposition, or set of propositions. The word 'proposition' will be used interchangeably with the word 'statement' in the plausibilistic theory of evidence. A proposition is something that is true or false, and that is expressed in a sentence of a language. Many others have used the term 'fact' where we use 'proposition.' Bentham used the expression *factum probans* to stand for this part of the evidence. According to Patterson (1965b, 1), evidence is based on "propositions of fact" that are related to a proposed conclusion, and these facts are the "basis" of the evidence.

Then there is the stage where inferences are drawn from this given evidence, so that more evidence is produced. This is the stage of reasoning about the inference, and drawing conclusions about what it means. The conclusion drawn by inference was called the *factum probandum* by Bentham. Again, I have no objection to this usage, as long as the conclusion is seen to be a proposition. So evidence is viewed in the new theory just as Bentham and Wigmore viewed it, as an inference from premises to a conclusion. Then there is the aspect of how the evidence is used for some purpose. Evidence is always used to prove some global claim that is in dispute or doubt. At this stage, further conclusions are drawn about whether the evidence is strong enough to prove or disprove something that is of concern as an issue or problem to the investigators that have collected this evidence. This part could be called the pragmatic or dialectical aspect of the evidence, because it relates to the purpose or supposed use of the evidence.

This dialectical aspect is an important part of the new theory that is necessary, it will be maintained here, to understand the idea of relevant evidence in a useful way. According to the functional analysis of evidence of Patterson (1965b), relevance is "the essential relationship of propositions which are evidence to the proposition which is the proposed conclusion." Relevance of evidence is determined "by the inference drawn from the evidence" (1). In the new plausibilistic theory, relevance will be determined not only by the sequence of inferences that chains forward toward the conclusion to be proved, but also by the type of dialogue in which the argument has been used. The dialectical aspect also explains how it is possible to have different standards and requirements for evidence in different fields of knowledge, in different professional disciplines, and for different purposes. For example, the notion of scientific evidence is quite different from that of legal evidence, in many important ways. And to understand both as representing a core concept of evidence, it is neces-

sary to take this dialectical aspect into account. One central assumption of the new theory is that evidence is always evidence *for* something, or at any rate, is evidence in relation to some framework of inquiry wherein that evidence is being collected or considered.

When we say that something is evidence for something else, on the new theory this assertion needs to be understood as expressing and depending on a triple sequence, a three-place relation bridging the basis stage, the inference stage and the pragmatic stage, that is appealed to. One component is the body of basis evidence itself, some collection of facts or objects or reports. The next component is the conclusion (or conclusions) drawn or proven by inference from this body of evidence—what the evidence shows. The third component is the use of the evidence collected and interpreted in the first two parts. In this regard, the notion of something's being evidence for something else seems comparable to the notion of an argument. So the notion of evidence expressed in the new theory has to be seen as very much a relational and dynamic idea. It is opposed to the idea many seem to at least initially have about evidence, to the effect that it should only be composed of "hard facts," "just the facts," or only of what can be directly seen or heard, or of observable events or physical objects. The new theory makes evidence seem like a more relational notion that has a lot to do with chains of argumentation.

Schum used the famous murder trial of Sacco and Vanzetti to illustrate how a line of argument is set up to establish the relevance of an item of evidence. The basic facts, as described by Schum (1994, 75), are as follows. Sacco and Vanzetti were picked up by police several weeks after a robbery involving a murder had occurred in South Braintree, Massachusetts, on May 5, 1920. The two were arrested on a streetcar, and it was found that they were both carrying revolvers. The arresting officer, Michael J. Connolly, testified that Sacco had attempted several times to put his hand under his overcoat in spite of being warned not to do so. There was also testimony that Vanzetti had made similar gestures. This testimony about the actions of Sacco and Vanzetti was admitted by Judge Webster Thayer as relevant to the issue of whether Sacco and Vanzetti had taken the life of Alessandro Berardelli during the payroll robbery. Given these facts about this famous case, Schum poses the following question as a case study. What are the grounds for justifying the conclusion that Connolly's testimony should be judged relevant in the case?

In order to answer the question, Schum sets up what he calls a "line of reasoning" or an "argument" that links up the testimony of Connolly with a conclusion that is supposed to be proved in the case (1994, 77). How Schum illustrates the line of reasoning is through the use of a diagram that exhibits the chain of reasoning from the testimony to the claim to be proved. Schum's

technique of diagramming is quite similar to the method of argument diagramming now widely in use in informal logic. One difference is that Schum expresses the evaluation of each node in the diagram using probability theory. In describing the line of reasoning in the case he cited below, we have re-expressed these evaluations in terms of plausibility. The way Schum analyzes the reasoning in the case, the diagram shows a chain of reasoning that has seven steps (87–89). The sequence of the steps of reasoning is different from Schum's in other ways as well. As indicated below, each step involves an argument that fits the particular facts of the case into some kind of plausibilistic generalization. A conclusion is then drawn from the two premises. The reasoning in each step links with the reasoning in another step. The sequence of steps forms a chain of reasoning.

1. Starting with Connolly's testimony as an instance, the following generalization can be invoked: if a police officer testifies that an event occurred, then that is a reason for thinking that the event occurred. Connolly testified that Sacco attempted to put his hand under his overcoat. Therefore, there is reason to conclude that Sacco attempted to put his hand under his overcoat.
2. Persons arrested while carrying concealed weapons, might try to grasp these weapons. Sacco was arrested while carrying a concealed weapon. Reasoning from this plausible generalization and the conclusion of step 1, we might conclude that Sacco's intention in putting his hand under his overcoat was to grasp a concealed weapon. In other words, Sacco intended to draw the revolver from his belt.
3. An arrested person carrying a concealed weapon might intend to use this weapon to threaten or harm the arresting officer. At any rate, that is a plausible generalization. Suppose, as concluded from step 2, that Sacco did intend to draw his revolver. It follows that he might have intended to use it, or threaten to use it, on the arresting officers.
4. An arrested person might intend to use a concealed weapon to threaten or harm the arresting officer, in order to try to escape. That is a plausible generalization. Suppose that Sacco did intend to use or threaten to use a concealed weapon, as the conclusion of step 3 indicates. It follows that his intent may have been to try to escape.
5. Persons who intend to escape from arresting police officers may be doing so because they are aware of having committed a criminal act. Suppose that Sacco did intend to escape from arresting police officers, as indicated by the conclusion of step 4. It follows that he might have been distressed about having committed a criminal act.
6. If someone is distressed about having committed a criminal act, it might

plausibly be quite a serious criminal act, like a robbery or shooting. Suppose that Sacco was distressed about having committed a criminal act, as concluded from step 5. The plausible conclusion is that Sacco was distressed about quite a serious criminal act, like a robbery or shooting.

7. If a person was distressed about quite a serious criminal act, like a robbery or a shooting, then that might tend toward indicating that he actually committed it. According to the conclusion derived from step 6, Sacco was distressed about quite a serious criminal act, like a robbery or a shooting. Therefore, it is plausible that Sacco did commit the robbery and shooting in South Braintree on April 15, 1920.

The chain of reasoning started with the testimony of Officer Connolly at step 1. Then by a series of connected arguments, the chain of argumentation finally arrived at the ultimate conclusion at issue in the case. Many of these plausibilistic generalizations are weak. Schum (1994, 91) calls them "commonsense generalizations" that any juror-eligible person would have, as a result of his or her "life experiences." Some are arguments from sign. Some are based on hypotheses about a person's goals and intentions, based on his actions. All of them are abductive inferences (as will be shown in Section 2, just below). Some are stronger than others. But each of them leads to a conclusion that could be true, and has some probative weight. Thus if we scan over the whole chain of reasoning as a connected network of inferences, we see many inferential links on the chain. Each link is made up of an argument using premises composed of a plausibilistic generalization and a supposed fact. The whole chain of reasoning throws some weight of plausibility on the ultimate conclusion that Sacco did commit the robbery and shooting. Does it prove that this conclusion is true? No. What it shows is that Officer Connolly's testimony is relevant evidence in the case.[1]

The interesting thing about this case is that it was a case of wrongful conviction. Sacco and Vanzetti, it turned out, did not commit the robbery and shooting. And yet Judge Thayer's ruling that Connally's testimony was relevant evidence was justifiable, according to the facts of the case known at the time he made this decision. This example, as analyzed above, illustrates the central components of legal evidence in a fact-finding case in a trial. Officer Connolly testified to some alleged facts of the case that he witnessed when he arrested Sacco and Vanzetti. From these facts, using a number of generalizations drawn from "common sense," a set of inferences can be constructed, leading to vari-

1. The notion of legal relevance as based on a chain of reasoning used to carry probative weight in the context of a disputed issue will be analyzed in Chapter 7.

ous conclusions. But when all the inferences are put in a sequence as steps, a chaining of inferences is set up. The final conclusion in the chain is the ultimate *probandum* in the case. Hence, it is shown that the witness testimony of Officer Connolly is relevant evidence. It is relevant because the final conclusion of the chain of inferences is the proposition at issue in the trial. What is evidence? It is a chain of argumentation made up of a sequence of inferences, typically plausible inferences, based on some premises that are supposed facts of some sort, like those that could be obtained by testimony. The probative weight or plausibility of the premises moves forward over the chain, transferring an increased (or decreased) probative weight onto the ultimate conclusion in the chain.

The idea of evidence appears to be closely related to another idea that is fundamental for logic, that of an argument. Inferences drawn from basic evidence also count as a kind of evidence, or as leading to conclusions that are also evidence of a sort, on the new theory. The parts of evidence sound something like the parts of an argument. Just as an argument has premises and a conclusion, so evidence for something is a given body of facts or propositions, what is inferred from them, and the uses made of such inferences in drawing a more general conclusion to prove or disprove something. So the question needs to be asked: what is the difference between evidence and an argument (assuming there is some discernible difference)?

2. EVIDENCE AND ARGUMENT

Some might say that there is really no difference between evidence for a proposition and an argument for that proposition. Both are ways of supporting that proposition, by giving reasons why it should be accepted as true. But such an equation does not seem quite right. To say that there is evidence for something is somewhat stronger a claim than saying there is an argument for it. The difference seems to be that to say there is evidence for something means that there is a good argument for it that is definite and that is based on "real facts," or on some basis that stands fairly firmly, more so than if it were just any argument. Although it is difficult to pin down exactly what the difference is, evidence seems to be a stronger idea than argument. Evidence is not so lightly dismissible as an argument for something might be, in some cases. Evidence seems to stand in place more firmly—to be anchored to something, so to speak.[2]

Perhaps it is helpful here to have recourse to the distinction commonly made

2. The use of the term 'anchor' is a reference to the theory of anchored narratives of Wagenaar, van Koppen, and Crombag (1993).

in logic between a sound argument and a valid argument. A structurally correct argument (valid, in the case of deductive logic) is one where if the premises are true then the conclusion must also be true (by logical necessity in a valid argument). A sound argument is one that is not only structurally correct, but as well, the premises are (all) true. To say an argument is valid (or structurally correct) is only a hypothetical claim that if the premises are true then the conclusion is true too. But the claim that an argument is sound is more than hypothetical. It is a claim that the premises are actually true. In a parallel way, to say that there is evidence for a proposition is not only to say that there is an argument for that proposition; it is to say that there is such an argument, and the argument has premises that are true, or at least that hold, in the sense that there is a claim being made that they are true or should be accepted by the audience to whom the evidence is shown. Legal evidence, however, is typically based on premises that are not conclusively known to be true. Instead, they are said to have probative weight. In legal evidence, the probative weight is shifted from the premises onto the conclusion of an inference, provided the inference has a certain form that is structurally correct.

In other words, to say that something is evidence for some proposition, is more than just to say that there is an argument for it. It is to say that there is an argument for it, and that this argument has plausible premises. The premises are being held to be true by the proponent of the argument. So the notion of evidence is stronger than that of argument. When you say you've got evidence, that is a stronger claim than if you say you have an argument. What you claim to have is an argument in which the premises give a reason, although it may not be a conclusive reason, to accept the conclusion.

As a first shot at saying what evidence is, we could try the following hypothesis.

> (*H1*) When somebody says, "I've got evidence for this proposition," it means: "I've got an argument for this proposition, the argument is structurally sound, and the premises have probative weight."

The argument can be a chaining of subarguments, as in the Sacco and Vanzetti illustration above. The various premises have to be plausible enough for the chain of argumentation as a whole to throw probative weight onto the last conclusion in the chain. If that last conclusion is identical to the proposition to be proved in the case at issue, the evidence is relevant. In short then, it is right to say that evidence is argument. Evidence is a chain of argumentation in which the premises have some probative weight.

An interesting aspect of the legal usage of the term 'evidence' is that you can have evidence for a conclusion and, in the very same case, evidence against that same conclusion. Schum (1994, 121) calls the following kind of case one of contradictory evidence. One person reports that some event occurred, and another person reports that the very same event did not occur. In such a case, there exists conflicting evidence, in the following sense. It is not logically possible for both reports to be true. If one is true, the other must be false. In fact, this type of situation of conflicting evidence is typical of a legal case at trial. Evidence will be presented on both sides of the case at issue. What these facts appear to show is that legal evidence can be, and often is, inconclusive.

Another interesting aspect of legal evidence is that what is evidence is tied to time and to what is known, or thought to be true, at a given time. For example, suppose testimony was given by a witness in a trial, the trier accepted the testimony as a true account of the facts, and the defendant was convicted of a crime based on that testimony. The testimony is called evidence. But then suppose that new evidence, like DNA evidence for example, shows that the witness could not have been telling the truth. Suppose then that the witness admits to having lied or to having been mistaken. How should we describe a case like this? It seems fair to describe legal usage as follows. The testimony was evidence at one time. It was relevant, because in the context of what was known or thought to be true at the time, it had probative weight in relation to a claim that the defendant had committed a crime. But then considered from the standpoint of the later developments, the original testimony is no longer evidence. For once it has been shown to be false, the allegation no longer carries probative weight. What these observations about legal usage of the term 'evidence' show is that legal evidence is defeasible (Prakken 1997). Something can be "evidence" at one time, and then cease to be evidence at a later time, once new facts come to light.

The most familiar way of defining when an argument is structurally sound (in traditional philosophy) is to say that the argument is deductively valid—meaning, as noted above, that the conclusion of the argument follows by logical necessity from the premises. But it may be useful to add here, that in my view, inductively strong arguments can also be structurally correct without (necessarily) being deductively valid. Also, perhaps even more controversially, in the views expressed by Rescher (1976), Cohen (1977; 1992), and Walton (1992c), plausibly strong arguments can be structurally correct without either being deductively valid or inductively strong. Plausibly correct arguments are ones that have the form of an argumentation scheme, representing a familiar form of argument like argument from analogy, or appeal to expert opinion (Walton 1996b). How these kinds of argumentation are used in legal reasoning, and how

the study of their forms has been the subject of recent pragmatic investigations in analytical philosophy and argumentation theory, has been shown in Alexy (1989). These kinds of arguments are presumptive and plausibilistic in nature, as opposed to being deductive or inductive, and the pragmatic approach of evaluating them in relation to a dialectical context of use suits the plausibilistic theory very well.

What does the claim that the premises have probative weight mean? The claim being made here is that the premises cited as furnishing the basis of the evidence are of a kind that have some veridicality set in place by presumptions about their nature, as kinds of propositions. For example, suppose that in a court of law, the propositions in question have been testified to as true by a witness.[3] This gives them a certain standing or status, in a court of law, and to some extent as well, even outside a court of law. Or for example, suppose that a scientific paper on physics is published that gives reports of observations relevant to a particular hypothesis in a branch of physics. Once these findings are reported in a journal, in the appropriate way, they have a certain standing, and cannot be brushed aside too easily. The other physicists cannot read the article and then say, "Well, yes, that's an argument in favor of the hypothesis, but it's not an argument that is going to change my opinion about this hypothesis, or make me think it's any more plausible than I found it before." If the reports made really are scientific evidence for the hypothesis in question, then they can't just be waived by a scientist working in that field, for no reason. She must think that there is other evidence that goes more strongly the other way, or that this evidence is not strong enough yet, or something of that sort. If something really is evidence, it can't just (too lightly) be brushed aside, and not taken into account, in deciding on what view of a matter to accept. So having probative weight means that there is something behind the premises, or at least could be, meaning that there is a claim made that has some kind of backing of the right sort needed to convince a respondent to accept them as true, or plausible.

Chapter 3 showed all the logical difficulties and ambiguities inherent in the distinction between circumstantial and noncircumstantial evidence. Is circumstantial evidence the opposite of direct evidence, or is it better defined as the opposite of direct evidence? How is direct evidence to be defined? Should it be defined as a deductive inference between the basis of the evidence and the conclusion derived from it by inference? Possibly. But even if this criterion can be made to work, which appears dubious judging from Chapter 3, how useful

3. It was shown in Chapter 2, Section 4, how argument from witness testimony is a defeasible form of argument that transfers probative weight from the premises to the conclusion of an argument.

is the distinction? As indicated in Chapter 3, it is significant that the FRE does not essentially rest on the distinction between circumstantial and noncircumstantial evidence. Instead, the FRE defines evidence using Wigmore's framework of probative weight in relation to the issue to be proved. The new plausibilistic theory of evidence will follow Wigmore's route, and dispense with the notion of circumstantial evidence as an essential part of the theory. The new plausibilistic theory, of course, places great emphasis on what is often spoken about as circumstantial evidence. But the new theory abandons essential reference to the notion of circumstantial evidence as a building block of the theory. Eventually, when there is more clarity and agreement on what is meant by 'circumstantial evidence,' the new theory may come to incorporate such a notion. For the moment, what the new theory does is to throw light on the ambiguities and confusions in the various conventional ideas about what is taken to be the notion of circumstantial evidence.

Deductive reasoning is conclusive in just the following sense. If the premises of a deductive inference are true, then the conclusion must necessarily be true. Could it then be a reasonable hypothesis that what distinguishes direct from circumstantial evidence is the following criterion? Let's call it the inferential criterion. The first part of the inferential criterion is the assumption that direct evidence is based on deductive reasoning. The second part of the inferential criterion is the assumption that circumstantial evidence always rests on inductive or plausible inferences. Whatever the truth about the inferential criterion is, it is suggested as a hypothesis by the way that many writers on legal evidence describe or define direct evidence. Such writers equate direct evidence with conclusive evidence. And what appears to make the evidence conclusive in the examples they cite is that the inference from the premise that is the base of the evidence to the conclusion that is proved from the base is deductive. For example, Schum presented the following example to illustrate how the expression 'direct evidence' is, or should be, used in law (1994, 117).

> Suppose that I come to your house today, and you observe that I am wearing a cast on my arm. You have direct evidence that I have a cast on my arm. The cast itself is tangible; you can see it for yourself. . . . Another way to describe direct evidence is to say that such evidence, if perfectly credible, would be *conclusive* on some issue.

Chapter 3 has shown that there are plenty of logical difficulties in working out how the inferential criterion actually applies to problematic cases. These findings support the analysis of legal argumentation in Feteris (1999). This analysis has shown that deductive logic by itself does not furnish an adequate model of

legal argumentation. Trying to use only deductive logic to model the concept of legal evidence creates more problems than it solves. But even so, perhaps these problems will eventually be solved, or at least dealt with somehow. What then should we make of the distinction between direct and circumstantial evidence, using the inferential criterion as a tentative basis for drawing the borderline of the distinction?

According to Patterson's deductive formulation of the inferential criterion (1965b, 5), a proposition constitutes direct evidence if it is consistent only with the proposed conclusion. But what does this mean, exactly? According to Patterson's account, to say that *A* is consistent only with *B* means that *A* is inconsistent with the negation (contradictory) of *B*. But it is a familiar truth about deductive implication that *A* deductively implies *B* if and only if *A* is inconsistent with the negation of *B*. So what Patterson's criterion of direct evidence amounts to is the following: the proposition *A* is direct evidence for the proposition *B* if, and only if, *A* deductively implies *B*. So deductive implication has become the essential criterion for the distinction between direct and circumstantial evidence. In a case of direct evidence, the basis proposition *A* deductively implies the proposition to be proved, *B*. In other words, the criterion is that *A* must be logically inconsistent with the negation of *B*. In a case of circumstantial evidence, *A* is consistent with the negation of *B*. In other words, it is possible that *A* is true and *B* is false.

Patterson's criterion doesn't seem too bad at first, and in fact it pretty well agrees with the McCormick criterion cited in Chapter 3, to the effect that with direct evidence, if you assume the basis proposition to be acceptable, the conclusion follows conclusively from that basis. These criteria are the same if what you mean by '*B* follows conclusively from *A*' is that *A* is logically inconsistent with the negation of *B*. This criterion seems desirable because it gives us a formal method, using deductive logic, of distinguishing between cases where direct evidence has been used, as opposed to those where circumstantial evidence has been used. But this criterion may not be as desirable as it appears to be at first, because of certain paradoxical inferences that are valid in deductive logic. In classical deductive logic, a contradictory proposition deductively implies any proposition you like. For example, 'Alice stabbed Bob and Alice did not stab Bob' deductively implies 'The moon is made of green cheese.' There is a whole range of such paradoxical implications that need to be dealt with (see Stevenson 1970). They represent technical problems that are not insoluble, but that pose difficulties for using classical deductive logic, or deductive implication generally, as a basis for distinguishing between direct and circumstantial evidence.

Another problem is that we need to distinguish between two kinds of criteria for distinguishing between direct and circumstantial evidence that are both

based broadly on deductive logic. One is the deductive implication criterion attributed to Patterson (1965b) above. The other is what might be called the identity or equivalence criterion, attributed to Bentham in Chapter 3. According to this criterion, *A* is direct evidence for *B* if *A* and *B* are the same proposition, or are logically equivalent to each other. According to this criterion, for example, if what the witness reports is the proposition '*a* stabbed *b*,' and the conclusion drawn is the proposition '*a* stabbed *b*,' then the first proposition is direct evidence for the second. Judging from Patterson's account, it is not clear that he distinguishes between these two criteria. The textual evidence suggests that he thinks of them both as being the same criterion, when he writes (4) that in a case of direct evidence, the "evidence takes substantially the same form as the conclusion." One problem with the equivalence criterion is a kind of case already cited above, where the basis proposition is '*a* stabbed *b* with a knife' and the conclusion proposition is '*a* stabbed *b*.' Presumably, this kind of case is considered to be one of direct evidence. But although the basis proposition deductively implies the other proposition (or, at least, most would say so), it is not identical with, or logically equivalent to the other proposition. So here is the difference between the two criteria, and an indication that the equivalence type of criterion may not be what is wanted, at least with respect to the use of the distinction between direct and circumstantial evidence in law.

The lesson to be learned from Chapters 3 and 4 is that the vast bulk of instances of legal evidence fall into the circumstantial category. In fact, in typical cases of evidence used in fact finding argumentation, there is a vast body of small or local inferences, each one of which has some weight of plausibility. None of them proves the conclusion at issue directly. Quite to the contrary. Each small bit of evidence is only significant in the larger body of evidence that makes up one side of a case. Looked at from the viewpoint of the ultimate *probandum* in such a typical case, each single bit of evidence is circumstantial. At least, that is how the typical case could be described using the inferential criterion to classify the kinds of evidence involved. What these observations suggest is that the distinction between direct and circumstantial evidence isn't all that important, when it comes to dealing with a typical case of legal evidence. The vast bulk of the evidence is based on plausible reasoning. In many typical cases of evidence used in fact-finding argumentation in a trial, the inferences in the chain of reasoning are plausible inferences. In many instances they are abductive arguments.

One interesting aspect of the chain of reasoning in the Sacco and Vanzetti case is that many of the single arguments in the chain are abductive in nature. Was Sacco trying to grasp his revolver when he put his hand under his coat? Or was it merely a harmless normal action? Nobody can answer this question

conclusively, except possibly Sacco himself. But given the other known facts in the case, it is a plausible conjecture that Sacco may have intended to grasp his revolver. The argument for this conjecture is typical of inference to the best explanation, or abductive argument. Given that the facts are that Sacco had a revolver under his coat, and that he put his hand under his coat, one explanation of his action is that he intended to grasp the revolver. The inference is typical of the kind of common legal argument cited by Wigmore when he outlined the form of inference used to reason from a person's action to that person's presumed intention (see Section 7 below on logical and legal relevance). Given an action in a context, we can quite often construct a hypothesis about what the person's presumed intention was in carrying out that action. But the argument in such a case is surely one of inference to the best explanation. Abductively, we reason from the known or supposed facts of a case, and infer to a plausible explanation of those facts.

Consider also the other connected arguments in the steps in the chain of reasoning. Was Sacco intending to pull out his revolver? Why would he do that? Well, one explanation could be that he intended to escape from the police. Why would he do that? Well, maybe he had committed a serious crime. That would explain why he would try to escape. But the escape hypothesis is really not all that plausible. It has some plausibility in context. So it is relevant evidence, in light of the other facts of the case. But there could be other more harmless explanations of Sacco's actions as well. In court, it would be up to Sacco's attorney to suggest an alternative explanation that might also have some plausibility.

It is this kind of plausible reasoning that is most important to understanding how the underlying logical structure of legal evidence and legal relevance work. Of course, this approach of emphasizing the role of plausible reasoning does not rule out the hypothesis that deductive inferences and inductive inferences are sometimes used in legal reasoning. It was made clear in Chapter 1 that in some straightforward cases of rule-based argumentation in law, the rule and the given facts imply the conclusion deductively. But in the so-called hard cases, the kinds of cases that so often come to trial, there are complications. There can be all kinds of exceptions to the rule, or there may be other relevant rules opposed to the original rule. In these kinds of cases, there is a conflict of opinions, and there are arguments on both sides. The arguments on each side tend to be composed of many individually plausible subarguments all chained together in a line of reasoning leading to an ultimate *probandum*. No single argument is, by itself, conclusive. If any of the single arguments were conclusive, there would be no need for all the rest of them. But in a typical fact finding case, the evidence is not made up of one conclusive single argument. It is made

up of a mass of evidence composed of many single plausible inferences all chained together into an evidence network.

What this view of legal evidence suggests is that the traditional approach to legal logic should be turned on its head. The traditional approach emphasizes the importance of deductive logic, and tries to absorb all other kinds of reasoning used in legal evidence to inductive inference. The new dialectical approach turns this emphasis around. Now what is indicated is that plausible reasoning should be emphasized as the most common and important kind of reasoning in legal evidence. Current research in law and artifical intelligence is now tending to support this new view of legal reasoning (Prakken 1997; Verheij 2000). Hage (1997) showed how legal reasoning of the typical kind based on rules cannot be well modeled by context-free deductive or inductive logics, and has to be based on patterns of inference supported by warrants that are subject to exceptions. Verheij (2001) has shown how logic as a formal system of valid inference can only model typical defeasible logical argumentation if it moves to take into account how exceptions to a general rule can defeat an argument. According to Verheij (2001), defeasible legal inferences of the most common sort are not based on deductive rules like *modus ponens*. They are based on defeasible inferences warranted by generalizations that are not absolute or universal. Thus the very common sort of rule-based legal argument that is so typical of evidential reasoning in law is neither deductive nor inductive.

Deductive and inductive reasoning are important in legal argumentation, but they should be seen as applicable to a much smaller part of the evidential picture than was previously thought. Deductive reasoning is conclusive. That is its strength. But that is also its weakness, when applied to the kind of reasoning typical of legal evidence. This kind of reasoning tends to be inconclusive. Deductive reasoning is context-free. This too is an advantage, leading to the construction of abstract calculi that can be applied without having to make assumptions about the use of an argument for a collaborative purpose at some stage of a goal-directed dialogue. But it turns out to be a disadvantage when one attempts to evaluate argumentation used in legal evidence. In typical cases of this sort, as examples of legal reasoning have shown time and time again, the context of use of the argumentation is vital (Hage, Leenes, and Lodder 1994). What is required is to take a small bit of evidence, typically in the form of a plausible inference that is not deductively valid, and then judge how that bit of evidence fits into the larger mass of evidence in the chain of argumentation in the given case. To make such an evaluation, as Chapter 5 showed, you need to look at the larger context of the case, and judge how the argumentation is to be used for some purpose in that context. The context is that of a goal-directed conversational setting in the form of a dialogue.

3. THE PROBATIVE FUNCTION

These remarks suggest that the difference between evidence and an argument is that evidence is tied to the use of a so-called probative function in argumentation. According to the definition given in Walton (1996a, 18) an *argument* is a sequence of reasoning made up of a chaining together of inferences that is used to contribute to the settling of an unsettled issue in a dialogue. These dialogues are of six different basic types (22–26). It is important to distinguish between a hypothetical argument, where the premises are merely assumptions, and no attempt is made to prove them, and an argument that has what is called a probative function that is being used. The *probative function* of an argument (20) is the use of an argument to shift a weight of acceptance forward so that the respondent, who did not accept the conclusion beforehand, is led to accept the conclusion because of the support given to it by the premises (which he did accept, or did not doubt) before the argument was used. This probative function of argumentation appeared to have been known to the Stoics, according to the account of it given by Sextus Empiricus in his *Outlines of Pyrrhonism* (Book II, 140–41), where he wrote that probative (*apodeiktikoi*) arguments are those "which deduce something nonevident by means of pre-evident premises." Sextus gives the following argument as an example: "If sweat pours through the surface, there are insensible pores; but in fact sweat does pour through the surface; therefore there are insensible pores." The conclusion, which is not pre-evident according to Sextus, is made evident by the argument.

The probative function is an important ingredient in the concept of evidence, and what makes an argument of a kind that it could rightly be called "evidence," or be said to constitute evidence for its conclusion, is the use of a probative function in the argument. The probative function, it seems, represents the idea that evidence—if it is genuine—always "proves" something, as opposed to an argument, which doesn't always "prove" something. The idea is that not every argument is a proof. An argument that proves something is one that does actually move a weight of plausibility onto its conclusion.

It might be noted here that the probative function of an argument is a dialectical notion. It has to do with the use of an argument by one participant to remove the doubt expressed by another party in the dialogue, by the use of premises acceptable to that other party (Prakken 1997; Feteris 1999; Lodder 2000). So the probative function comprises not just the validity or structural correctness of an argument but also how that argument is used in a dialogue exchange between two arguers who each have a part in the use of the function. Prakken and Sartor have shown how defeasible arguments need to be evaluated using a dialectical model. The reason is that arguments against a claim (so-

called defeaters or undercutters) need to be taken into account, as well as arguments in favor of the claim (Prakken and Sartor 1996).

How the probative function works can be explained as follows. The one party (the proponent) in a dialogue puts forward a claim or conclusion she is advocating as acceptable to both parties. The other party (the respondent) is doubtful about this claim, and his role is to question it.[4] In order to overcome this skeptical doubt of the respondent by using evidence, the proponent makes an additional pair of claims. One is that she saw or observed something, or more generally that some propositions or body of given data appeared to her to be true. The other is that the claim doubted by the respondent follows from these propositions by logical reasoning (by a logical inference, or chain of logical inferences). If these two conditions are met, then by means of the working of the probative function, the proponent has presented evidence that has been used to "prove" the proposition that the respondent initially doubted. The probative function is used to overcome these doubts, and present evidence of a kind that should lead the respondent, if he is a rational reasoner and collaborative participant in the dialogue, to accept the proposition that he previously did not accept.

Notice that this working of the probative function is expressed in terms of acceptance, and not in terms of belief or knowledge. The concept of commitment is used to express the idea of a participant's acceptance of a proposition in a dialogue exchange (Hamblin 1970; 1971). Each participant is said to have a commitment store, which could be visualized as a set of sentences written on a blackboard. At each move, propositions are added to or deleted from this set, depending on the type of move made. For example, if a participant asserts proposition *A*, then *A* is added to her commitment store. Typically, theories of evidence are expressed in philosophy in a belief model, but the probative function theory is expressed in an acceptance model, which does not necessarily represent the actual beliefs of any person. (On the importance of the distinction between belief and acceptance, see Hamblin 1970, 263–68; Cohen 1992, 1–39.) Generally then, the probative function is best seen as something that is designed to be used by one party in a dialogue to bring the other party in the dialogue to come to accept some proposition that he did not accept before that particular point in the dialogue where the probative function was used. The dialogue itself has a central purpose or goal, and the use of the probative function is ultimately to be directed toward this goal. Finally, there can be different types of dialogue, with different goals.

4. To meet the usual requirements for the nonsexist use of language, the practice is followed of generally making the proponent in a dialogue female and the respondent male.

To sum up, you could say that the probative function is not just an argument but the use of an argument to fulfill a certain kind of function in discourse. That function is to get a speech partner to accept some claim he doubts, or does not presently accept, by appealing to some basis that he does or should accept. The probative function shows how plausible reasoning needs to be evaluated with respect to the standard of burden of proof appropriate for a type of dialogue. The advent of new pragmatic and dialectical models of argumentation shows that the idea of a plausible inference is no longer regarded as being a part of evidence law that is of no serious, practical importance. This rejuvenation of the concept of the use of plausible reasoning within well-defined dialectical frameworks suggests that it might also be time for a new look at the concept of evidence, as being a key concept in such a framework.

The first problem facing the plausibilistic theory of evidence is not the one of understanding how plausible inference should work in the theory, as it is one of getting some grip on what "plausible" should mean as applied to the basic stage. What does it mean to say that a proposition is plausible—as opposed to saying that an inference drawn from a given proposition is a plausible inference (in a sense meaning that the inference is structurally correct or rationally binding)? What kinds of very general criteria should be used to determine whether a proposition (or report or claim) is plausible?

To say something is plausible seems to mean that it appears to be true. But what does that mean? The notion of plausibility that is the root notion of the concept of evidence evidently appeals to some appearance that is given or presented to some subject who receives and processes that appearance. But these notions are hard to grasp. They seem not only vague and hard to describe, but also subtle and elusive. But there is a way to articulate this idea of an appearance being plausible that goes back to the older notion of probability (plausibility) that was widely known and used before the Enlightenment.

4. ANCIENT ROOTS OF THE NEW THEORY

On the new theory, evidence always has the form of an inference from a set of premises to a conclusion to be proved. The forms of inference are generally among the ones listed in Chapter 2, but there are other forms of plausible inference as well. Also, in some cases the inference will be deductive or inductive in nature, as opposed to being plausibilistic. Most legal argumentation of the kind used in trials, however, is plausibilistic in nature. The premises depend on the type of inference involved (Hage 1997). In argument from analogy, for example, the premises will compare two cases, where one is taken to be similar

to the other. In argument from testimony, a source will be cited as vouching for the truth of some proposition, and one premise will be the assumption that the source is credible. Each plausibilistic form of argument, as shown in Chapter 2, has its distinctive argumentation scheme.

According to the new theory, the basis of the evidence supplied by the premises—that is, what Bentham called the *factum probans*—will always rest, directly or indirectly, on what the ancients called "appearances." That is, these propositions will be based on some kind of report or account of what seemed to be true to someone. So, for example, evidence based on eyewitness testimony will be based on what someone presumably saw. Or if the evidence is expert opinion evidence, the premises will be based on how things appeared to the expert—that is, on the expert's opinion as she stated it, or as it was extracted from her by a process of examination. Evidence, in the new theory, is not based on knowledge or belief, but on appearances, or more precisely, on what seems to be true, according to the ancient idea of probability. The two vital components of the theory are, first of all, the evidential basis—what seems to be true to someone—and then second, what can be inferred from that basis. All evidence, according to the new plausibilstic theory, takes this inferential form.

The new theory may be contrasted to what may be called the old theory, because it is a heritage of the Enlightenment. The so-called old theory is the modern view of evidence. It is only called "old" here to contrast it with the new theory, which is postmodern. But the terms 'new' and 'old' are relative. The old, or modern, theory was expressed most forcefully by thinkers like Pascal and Descartes, who had scientific reasoning in mind as the model of evidence. According to the old theory, all evidence is based on inferences that are deductive, or that are inductive. The term 'inductive' is taken in the modern sense originating with Pascal's framework, in which 'inductive' refers to probability in the statistical sense. In the old theory all evidence is based not on acceptance, but on knowledge or belief. In the new theory, all evidence is based on acceptance, or what is called by Hamblin (1970) commitment. Commitment does not necessarily imply belief. Belief is a psychological concept. Recent research is moving away from the older BDI (belief-desire-intention) model of rational thinking to a commitment model (Singh 1998).[5] The movement is one toward a dialectical model of rational argument. Commitment is a dialectical concept. In contrast to the knowledge-belief concept of evidence, the commitment-based plausibilistic theory of evidence is skeptical in nature. It assumes that evidence is generally open to doubt and potential retraction (at least, in the persuasion type of dialogue). It does not draw any tight relationship between knowledge and evidence, or between belief and evidence.

5. Commitment in multi-agent systems is brought out in Chapter 8.

According to the old theory, evidence is always a matter of calculating on the basis of probabilities, in the statistical sense. According to the new theory, which is based on an approach similar to casuistry, each case is different, and what is or is not evidence needs to be judged in light of the particular circumstances of the case. What is needed is not a numerical approach of calculating the chances that each individual proposition is true or false. What is needed is a holistic approach of judging the weight of each inference within the whole body of relevant evidence in the case, where the inferences are chained together in a network of argumentation. The argumentation on both sides is then evaluated holistically to judge whether the burden of proof appropriate for the case has been met by one side or the other (Lodder 1999). The question is not what the numerical probability of the argument is, but whether the argument is good enough to do the job it is supposed to do in the case. If the argument is good enough to shift the burden of proof to one side and against the other side, then the case is closed. Otherwise, the conflict of opinions is not resolved. It is always a question of judging which opinion can be shown to be acceptable, based on good reasons, in a case where a conflict of opinions has been posed (Prakken and Sartor 1996). By default, the opposed opinion is unacceptable. To be proved, an argument needs only to be strong enough to resolve the conflict (Feteris 1999). It does not have to be "known" to be true, or known by any special group, like the scientists, to be true. It does not have to be "believed" to be true, by anyone, or any special group. It does not have to be proved to be true by statistical procedures, like opinion polls or the like, or by the statistical-driven methods of the social sciences (or any sciences). It can be evidence if the ordinary person, who might be on a jury, for example, can be reasonably persuaded to accept it as true by the kinds of arguments analyzed in Chapter 2. Thus it can be evidence even if not proved to be true by scientific methods, or scientific ways of reasoning in some particular scientific discipline.

One of the main differences between the old and the new theory is that the old theory adopted the Enlightenment viewpoint that the only kind of reasoning worth taking really seriously is scientific reasoning. Scientific reasoning was taken to be context-free, so that the validity or strength of an inference could, in principle, always be calculated with scientific precision. If ordinary deliberation runs into conflict with scientific reasoning, then scientific reasoning always wins out, because it is based on knowledge, whereas ordinary deliberation or persuasion is not. The presumption is that the scientists "have the knowledge" so that, even when it comes to practical problems like pollution, social problems, or whatever, the scientists "know best" what to do. According to the new theory, however, science, or particular scientific disciplines, are a source of information and opinions that can be useful in deliberation, or in a persuasion

dialogue, but the opinions of the scientist need to be examined carefully. In many cases, they need to be probed exetastically, and questions need to be raised about what exactly the scientist is claiming and why she holds this opinion to be true. In the view of the new theory, evidence exists outside of science, and needs to be evaluated by standards and methods of argumentation that are not necessarily always the same, or used in the same way, as scientific arguments and proofs. The way the new theory approaches evidence, legal evidence is often based on scientific evidence, but as legal evidence it needs to be evaluated in a different way. The context of use is very important in the new theory. With legal argumentation, as used in a trial, the context of use has to be seen as different from that of scientific argumentation as used, say, within a scientific discipline. In legal argumentation the use of an argument for purposes of rational persuasion is vitally important. Within that framework, shifts to information-seeking dialogue, peirastic dialogue, and exetastic dialogue need to be considered in evaluating argumentation contextually. So, for example, an *ad hominem* argument that might be irrelevant, even fallacious, if used in a scientific proof, might be not only relevant and reasonable if used in legal argumentation in a trial. It might be vitally significant as evidence required to resolve the issue.[6]

The philosophical roots of the new plausibilistic theory of evidence go back to the ancient concept of probability described in Chapter 4. It originated with the sophists, but it is an idea that was familiar to both Plato and Aristotle, as well as other Greek philosophers. According to Kennedy (1963, 31), argument from probability (plausibility) would not have been considered by the ancients to express a scientific and exact method of calculation because, according to the ancient idea of plausibility, it was often possible to prove the exact opposite of a plausible proposition. The idea of plausible reasoning was essentially sophistic in nature. In contrast to Plato, who saw the most important and trustworthy kind of evidence as being based on knowledge of a kind that cannot be doubted, the sophists saw evidence as being based on appearances that are inherently subject to doubting and questioning. Instead of basing evidence on knowledge and belief, they would have based it on probability (plausibility). Plausibility is also often associated with the group of post-Platonic philosophers called the Academic Skeptics, and of course particularly with the theory attributed to Carneades.

Carneades (c.213–c.128 B.C.), the head of the third Platonic Academy,[7] developed his theory of "the probable" (*to pithanon*) that can be seen as capturing

6. Such credibility-based forms of legal argumentation are analyzed in Chapter 8, using a multi-agent system for dialectical argumentation.

7. See Chapter 4, Section 8.

the very notion of plausibility needed for the analysis of the concept of evidence. According to the account given in Hallie (1967, 34), based on secondary sources, probability (plausibility) is defined as meaning "that which, to some extent, appears true (and) induces our assent." We see here how the Carneadean theory is explicitly based on appearances, meaning that there is no guarantee that what appears to be true is actually true beyond all doubt. But based on premises that report such appearances, we can draw inferences, and then assent to the conclusion of the inference tentatively, until such point as there is some reason to doubt that the inference is plausible. Thus the Carneadean theory can be regarded as an ancient predecessor of the modern notion of abductive argument developed by Peirce. Abductive argument, or inference to the best explanation, is based on given data or appearances that supposedly represent the facts of a case.

According to the account of Carneades' theory given in Sextus Empiricus's *Outlines of Pyrrhonism* (I.33.227–29), some things are "just plausible," some things are "plausible and tested," and some things are "plausible, tested and stable" (Mates 1996, 122). Before giving the example used by the school of Carneades to illustrate this theory, it needs to be explained that the "things" said to be plausible or implausible by this school were called *phantasiai*, which Mates translates as "impressions" and others have translated as "appearances" or "presentations." The idea, according to Mates (1996, 32–41), is hard to translate into English, but it could perhaps be described as being what appears to you when you see or experience something. The term 'appearances' is probably quite a good one to adopt, to tie it in with the use of abductive inference in legal argumentation.

One special example explained by Mates is particularly helpful in trying to get a grasp of what Carneades' theory of the plausible was. According to Sextus (as translated by Mates 1996, 38), "when a rope is lying coiled up in a dark room, a person who enters the room suddenly gets a simply plausible *phantasia* that it is a snake. But to the person who has looked carefully around and considered the circumstances—for example, that it does not move, that it is of such and such a color, and so on—it appears to be a rope, in accord with a *phantasia* that is plausible and tested" (*Outline of Pyrrhonism* I.227–28). In addition, a *phantasia* is *stable* if "it is part of a coherent chain or concurrence of plausible *phantasiai*" (Mates 1996, 38), as in the example of a *phantasia* of a man that has a number of other *phantasiai* present as well, none of which appear to be false—like the color, size, shape, and speech of the man, and other external things, like the air, light, daytime, friends, and so forth. So a stable *phantasia* is one that fits into a context that appears to be normal, and fits in the normal way

into that context of related appearances. To sum up once again then, in Carneades' theory, there are three grades of plausibility in an ascending order—some *phantasiai* are (1) just plausible, some are (2) plausible and tested, and some are (3) plausible, tested, and stable. On this theory, all evidence is based on "appearances," or things that seem to be true as represented to us, or on inferences drawn from such appearances. Evidence supported on such a basis may rationally be accepted as true. Moreover, since all evidence rests on this kind of basis, nothing is ever known to be true, in the Platonic sense that it is certainly true with no possibility of its ever turning out to be false. Plausibility is the guide to all the important things in life, and is the rational basis for the kind of practical and wise thinking we need to do in conduct of everyday life. It is also the basis for legal reasoning in real cases.

But how can this old theory of rational acceptance be extended so it can provide a theory of evidence that is adequate to understanding and evaluating legal argumentation of the kind used in a trial? Carneades' theory of the plausible can be joined to the theory of the probative function, in conjunction with Rescher's theory of plausible reasoning (1976), and with the acceptance-based theories of Hamblin (1970) and Cohen (1992), to produce a new theory of evidence. What is most vital is the addition of the dialectical theory of argumentation set out in Chapter 5. According to this theory, evidence is something used in a dialogue exchange between two parties and, in particular, where the goal of the proponent is to meet a burden of proof, i.e., to give the respondent a reason to accept some particular proposition that the respondent does not accept. What exactly is the evidence? It is the use of the probative function by the proponent, which is fulfilled by her bringing forward an inference, of a type that is structurally correct and appropriate for use in the dialogue, and that is based on premises (propositions) that are plausible in Carneades' sense. This premissary or evidential base of propositions has to be plausible in just the following sense—it has to represent something the proponent has experienced, as an impression, or at least has claimed to have experienced (and where she has been in a position to experience such an impression). Or, even better, it has to be plausible in this sense, and also tested. Or, even better yet, it has to be plausible in the prior two senses, and also stable. This set of conditions represents exactly what someone has to do in order to present evidence—genuine evidence of the kind that should be required to get a rational person to accept something as true that they did not accept before as true.

Here then we have all the ingredients needed for the new plausibilistic theory of evidence, and the way they are put together shows how evidence should be used to rationally persuade somebody to accept something. The new theory

is not a psychological theory of a kind that would enable us to modify the beliefs of any actual persons, or predict how they might be persuaded by evidence offered. It is a normative theory that sets out conditions under which (a) some speech act in an exchange should legitimately be regarded as the putting forward of evidence or not, and (b) evidence that has been put forward in a given case should be evaluated, both in regard to its being plausible or not, and in regard to its having a particular weight of plausibility—that is, being strong or weak as evidence. Weak evidence is of a kind that is, or should be, questionable. Strong evidence is of a kind that leaves little room for skeptical questioning. In reality, the problem is how strong it needs to be, for different purposes. It could be "beyond reasonable doubt" if the cost of being wrong is high. Or it could be "more probable than not" or "more probable than before," depending on the costs of being wrong.

As noted in Chapter 4, Section 8, Carneades' theory of plausibility was the forerunner of the view of evidence advocated by the American pragmatists, who saw evidence and rational argument as based on practical acceptance rather than on abstract and idealized notions of truth and absolute proof. What really matters is what is tentatively accepted, based on what appears to be true, at a given point during the collection of evidence in a particular case. This pragmatic approach applies very well to the notion of legal evidence. Legal evidence is typically based on position to know argumentation in which a witness reports on what appeared or appears to her as factual. Such initial appearances can then be tested out, perhaps by questioning. The claim made, if it passes the test, is more plausible. If it fails the test it is less plausible. Then the third criterion of Carneades is that of stability. Does the plausible claim fit in with other plausible findings that appear to be true independently of the claim? At this point the theory of anchored stories of Wagenaar, van Koppen, and Crombag (1993) can be invoked. Does what the witness reports fit in with other things she supposedly observed? Does the whole account present a plausible story? If so, the original claim can be made much more plausible. According to the pragmatic Carneadean view, legal evidence is basically something that seems to be true in the form of a plausible argument that gives a good but defeasible reason to support a conclusion that is doubtful, or that has been questioned. This initial argument, that has the form of one of the familiar argumentation schemes like argument from witness testimony, is plausible, under the right conditions. But it might only provide a small probative weight by itself. It importance is its relevance in a larger mass of evidence in a case. It can be tested out, and it can be fitted in with other evidence. By these means it can be made more plausible or less plausible.

5. ADVANTAGES OF THE PLAUSIBILISTIC THEORY

As the plausibilistic theory has been developed so far, there are three aspects to how it works in order to give support to a proposition in question. The first part is the body of data, or appearances that seem to be true, just in the way Carneades says. The second part takes the form of an inference, or set of inferences, drawn from that data. The data function in the same way that the premises of an argument do. The third part is the probative function, which shifts the plausibility from the data propositions to the proposition in question, which functions like the conclusion of an argument. So the three parts are the given body of data, the inference link to the conclusion, and the probative function that transfers the weight of plausibility from the data to the conclusion. The so-called conclusion, the proposition whose plausibility is supported by data and the inference to it, is some proposition that was originally in question; that is, it is a proposition that was subject to doubt in the first place, or that needed to be looked into. The relevant evidence collected and brought to bear on it can be used to dispel that doubt or to resolve the question at issue one way or the other.

The plausibilistic theory offers a general way of making the distinction between direct and circumstantial evidence. Evidence for a conclusion *C* is direct if the assertion made as the basis of the evidence, *B*, is either the same as the conclusion drawn, *C*, or if the inference from *B* to *C* is deductively valid without any additional (implicit) premises having to be added in to make it deductively valid. For example, if the claim made is that *a* stabbed *b*, and the basis of the claim is that there is a body of data or appearances that *a* was seen to have stabbed *b*, then we have direct evidence, in such a case, that *a* stabbed *b*. Or if what was claimed to have been observed was that *a* stabbed *b* with a knife at midnight, then the conclusion that *a* stabbed *b* follows by deductively valid inference from this basis, without having to add other premises or assumptions. And so we may say that in this case, there was direct evidence that *a* stabbed *b*. But if the claim is that *a* stabbed *b*, and the basis of the claim is that a bloody glove was later found at *a*'s residence, then the evidence is circumstantial, because it is logically possible that *a* did not stab *b*, even though the bloody glove does shift some weight of presumption toward the plausibility of the conclusion that *a* stabbed *b*.

But here the problem resurfaces. Surely any argument from witness testimony is plausibilistic in nature, on the new theory, and so how could any argument based on testimony of someone's purported observations be deductively valid? This was the problem with the McCormick criterion, stated in Section 2

above. The solution is the realization that, in the new theory of evidence, even a deductively valid inference, where it is logically impossible for the premises to be (all) true and the conclusion false, can be nonconclusive as an argument on the grounds that the premises are not absolutely known to be true, beyond all doubt. So even in a case of direct evidence, where the inference from the basis to the conclusion is deductively valid, the argument itself is inherently fallible and plausibilistic in nature. The reason is that the premise is based on the impression of some observer or witness, who could be experiencing some appearance that does not correspond to the reality of what was reported. So there is always room for doubt, with all evidence, on the plausibilistic theory. That is why the plausibilistic theory is skeptical in nature.

The plausibilistic theory is pragmatic, in that it views evidence with respect to how that evidence is supposedly being used to resolve some doubt or issue that needs to be resolved. It is also inferential, and makes the concept of evidence similar in many ways to the concept of an argument. Not only circumstantial evidence, but even direct evidence, is viewed as inferential in nature. In the plausibilistic theory, all evidence is based on given appearances, which might turn out to be deceptive or false, in some cases, with respect to how they represent reality. Carneades was a skeptical kind of philosopher, and the plausibilistic theory of evidence reflects this skeptical viewpoint. It implies that something might be evidence now, and genuine evidence, even though it later turns out to be questionable or unreliable in some way, so that it is then replaced by better evidence. To say that something is plausible is, after all, only to say that it appears to be true, or seems to be true. And as philosophers have long been given to pointing out, there is a logical gap between what seems to be true and what really is true (in the sense of representing some external reality).

Critics of the plausibilistic theory may be inclined to think that it represents the concept of evidence as being too much like that of an argument—something that can be opposed by counter-arguments, and that is even susceptible to refutation. But according to the view maintained by these critics, evidence is something hard and definite, that you can grasp, that is binding, that compels a rational person to give in to it, and that is evidence precisely because it does genuinely represent reality. These critics seem to have a different view of evidence, and their view is one that strongly appeals to commonly held views of the matter.

When people think of evidence, they are inclined to think of a physical object, like perhaps a bloody glove or a knife. In law, this kind of evidence is called "real evidence" or "percipient evidence" (Patterson 1965b, 8–9): "Real evidence is by definition a physical object capable of being directly perceived by the senses." Here is something definite, that really exists, as anyone can see,

and that is why many people think of evidence, or "hard evidence," as being some sort of physical object. This view sees "the thing" as the evidence. But this view of evidence is somewhat misleading. Really the object is only evidence to the extent that it is evidence for something. It is only evidence because certain conclusions can be drawn from it that can be used to resolve or bear on some doubts or questions we have about something that is of concern to us. So as Patterson rightly argues, the real basis of any evidence is not the thing itself, but the proposition that is reported as describing such a real object or event (10). The evidence consists in the basis proposition, and the inference is drawn to support some claim or conclusion on that basis. Consider a footprint in the mud, or a mark in the mud that appears to be a footprint. It is evidence that someone passed this way. But it is only evidence that someone passed this way because we infer from the footprint, in its given context, that what produced it was a foot (or shoe), being placed there in such a way that it allows us to infer that someone walked that way. Even that, in itself, would not necessarily make it evidence. What makes it evidence is the potential interest an observer of the footprint might be expected to have on the question of whether anyone had passed that way recently, or whether there were any people in that area. It might become legal evidence, for example, if a person had been killed and robbed in the same area where the footprint was found. At least, this viewpoint represents how evidence, and how reasoning based on evidence, is seen from the perspective of the plausibilistic theory.

So, at any rate, the plausibilistic theory is just one theory of evidence, which presents a particular view of evidence. But there do seem to be other views that could also be held. And it should be seen that the plausibilistic theory does represent a kind of skeptical view about evidence—not a view that every reasonable person might be inclined to share. But still, as is shown below, the plausibilistic theory does have some advantages as a theory of evidence, and does apply rather well to certain kinds of evidence. It is the contention of this book that these advantages are overwhelming when it comes to modeling the concept of evidence appropriate for legal argumentation.

Typically the theories of evidence put forward in recent years tend to highly emphasize scientific evidence as the most important kind of evidence, or even as the only kind of evidence that is worth seriously accounting for. These theories also presume that deductive and inductive reasoning represent the only kinds of inference that it is important to know about in understanding evidence. The paradigms for this kind of model are the deductive kind of reasoning used in Euclidean geometry, for example, or the kind of inductive reasoning supposedly used in the confirmation of an experimental hypothesis in a field like physics. These theories postulate a high standard of precision and objectivity in

setting out what is considered to be an appropriate standard of evidence that a rational person should appeal to in order to judge what she should accept. By comparison, the plausibilistic theory seems to tolerate accepting propositions in some cases, even based on quite low standards. Its central paradigm is the use of evidence to guide actions and commitments in everyday life, in everyone's common experiences. By the standards of those who hold to these positivistic theories, the plausibilistic theory will seem too permissive and imprecise. The problem, to these critics, is that the plausibilistic view does not make evidence something that has to be quantified and verified in an objective, scientific way, by high enough standards of experimental science.

On the other hand, the plausibilistic theory has several important advantages. One is that it does justice to the important and necessary place of appearances that can be perceived by the senses in evidence—a factor that is heavily emphasized both in scientific evidence and in legal evidence in the common law system. According to John Strong (1992, 37–38) it is a pervasive requirement in the common law of evidence "that a witness who testifies to a fact which can be perceived by the senses must have had an opportunity to observe, and must have actually observed the fact." In the plausibilistic theory the centrality of this empirical component is assured by the first part of the theory, the thesis that all evidence is based on the body of data, or appearances that seem to be true. Carneades is skeptical in this regard. He does not demand that an observer be certain that something is true. He never assumes that what appears to be true really is, in some sense, true, or fully representative of reality. But in the same way, scientific evidence, if it is to meet the important requirement of falsifiability, should never represent itself as beyond all possible refutation or questioning by any new evidence that might come in. Also, the law of evidence, according to Strong, while "exacting in demanding firsthand observation," is not so impractical as to demand certainty (39–40). A witness can use such expressions as "I think" or "in my opinion," in some cases, if she is not sure about her observation or memory. At any rate, the primacy of sensory impressions in the plausibilistic theory is a strong asset in modeling both legal and scientific evidence. Another strong asset is that, because it is based on plausible reasoning as the model of inferences drawn from this sensory basis, the plausibilistic theory can capture the basic idea that is so common with evidence. This idea is that of the defeasible nature of evidence. Legal evidence typically has a certain probative weight in supporting a claim or conclusion, even though it is open to questioning, challenge, and doubts.

Yet another asset is the pragmatic aspect of the plausibilistic theory. The probative function that transfers the weight of evidence to a conclusion typically works through a chain of inferences used as an argument to support or

rebut a particular proposition that is, or was initially, in doubt in a dispute or dialogue. Because the theory places an equally strong importance on the inferential factor as on the given data factor, it can do justice to the important concept of relevance of evidence. Relevance of evidence refers to how the chain of inferences drawn from the initial premises presenting the data is supposed to be used to prove or disprove some proposition that is at issue, or is the basis of a controversy. Evidence is most often, in both science and law, based on a chain of inferences drawn from (reportedly) perceived facts. But we can't stop there. Whether the evidence is relevant, and how strong it needs to be to prove what is required to be proved in a given case, are matters that relate to how the chain of inferences is being used in a context of dialogue or disputation. But this aspect too is an important part of the evidence. It is a strong advantage of the plausibilistic theory that it can be used to give a logical basis for the important distinction between relevance and sufficiency of evidence.

6. SCIENTIFIC EVIDENCE

An important characteristic of scientific evidence is that it is supposed to be reproducible, meaning that if any other person (than the person who made the claim) goes through the same process of observing or testing, under the same conditions, then she should get the same "appearances" (as Carneades might have said) as those of the first person. So in the scientific conception of evidence, the testing, the criterion of Carneades' second grade of plausibility, is very important. But how crucial is the first grade of plausibility, the basing of it on initial appearance?

Empiricists would certainly agree that scientific evidence should be based on some observed (empirical) data, and typically, this requirement seems to be important. The normal process of the scientific method of confirming a hypothesis is to look for some kind of data that would confirm the hypothesis, and then to only accept the hypothesis if in fact that data is observed. This kind of evidence could be called *positive evidence*, meaning that an expected outcome is tested for, and then found, and this finding is used to support the hypothesis being tested, to count in favor of the acceptance of that hypothesis as being a true proposition. But positive evidence, although it is often treated as the paradigm of good scientific evidence, is not the only kind of evidence.

Another kind of evidence that arises in scientific research is *negative evidence*, in which an expected outcome is tested for, and not found, and then a conclusion is drawn about the failure to find. The kind of reasoning used in negative evidence has the form traditionally called the argument from ignorance (*argu-*

mentum ad ignorantiam) in logic: a proposition *A* is not known to be true (false); but if it were true (false), it would be known to be true (false); therefore it is false (true). The argument from ignorance has traditionally been portrayed as a fallacy in logic textbooks, although it is sometimes acknowledged that it can be a reasonable form of argument in some cases.

Scientific journals have a longstanding preference for publishing positive over negative evidence, but the publishing of so-called negative results is increasing. Some see this increase as a slipping of high standards of scientific research practices, while others think that the publishing of more negative results would be useful. Sterling, Rosenbaum, and Weinkam (1995) have argued that publishing more negative results can prevent other scientists from unknowingly repeating an experiment that has already been done, a waste of effort and money. In their view, there is a bias in the publication practices of publishing scientific research which results in a bias in the collection and evaluation of scientific evidence as a whole. Sterling (1959) argues that the present practice of giving such a strong priority to the publishing of positive over negative results is based on a bias against negative scientific evidence that is not justified logically, and should be corrected.

The issue of negative evidence in science is related to some important theoretical questions about what evidence is generally. According to the plausibilistic theory, evidence is based on some data, which in Carneades' account of the plausible, would be a set of impressions or appearances—some kind of observed data or empirical input—and then an inference is drawn from this data by means of plausible reasoning. But should it count as "observed data" if the observer looks around carefully, and determines that something she expected to find is not there? For example, suppose you say there is a pen in the drawer, and I look in the drawer and, seeing no pen in there, say "I have looked carefully, and there is no pen in there." Is what I said based on observational data of a kind that should license the drawing of a conclusion to the effect that we have evidence that the pen is not in the drawer? This question is not easy to answer, and one can see two sides to it. But it is a fundamental question for the theory of evidence.

What I would say is that a failure to find something you expected to find (under the right conditions—provided a proper search was made) should count as a kind of evidence (negative evidence), according to the plausibilistic theory of evidence. Moreover, I would say that there is a *prima facie* case that can be made that this kind of evidence should count as scientific evidence. But how much of it ought to be published in scientific journals is a question I will leave to the scientists.

What needs to be brought out in evaluating the place of the plausibilistic

theory in relation to scientific evidence is that scientific research is a process that typically goes through various stages. First, there is a discovery stage, characterized by guessing, where plausible hypotheses are put forward that might account for the phenomenon in question. As these hypotheses get weeded out, and some of them survive the initial testing, they come to be refined, and stated in a more sophisticated way, with qualifications attached. Along with this more refined statement of the hypotheses, theories are expressed, at a higher level of generality, and the theory is generally expressed in a more exact fashion than the initial rough hypothesis, using mathematical techniques of reasoning and forms defining key terms. Further along the line, once agreement has been reached that a hypothesis or a theory has achieved broad acceptance, it will be put forward as something that can be communicated to the outsiders as a "result," proven by scientific research. This stage is a kind of concluding stage of a scientific investigation, where a mass of findings are brought together, and consensus is reached about what the research has supposedly established, as an outcome. This stage also has a lot to do with presenting the results of the research to the wider public of users of that research.

Peirce thought that what he called abductive reasoning was characteristic of scientific research at the discovery stage (Peirce 1965; Eisele 1985, 890). Abductive inference (Walton 1996a, chap. 8) reasons backward from a conclusion to a premise that gives a reason for accepting that conclusion, and an explanation of "where that conclusion came from." According to Peirce, plausible reasoning, of the kind used in science to narrow down an untested set of hypotheses to those that are best worth testing (thus saving money), is based on abductive inference. Within such a Peircean philosophy of science, it would seem that there is room for the plausibilistic theory of evidence to flourish.

It is at the later stages of the sequence of progress in a scientific investigation that there seems to be less room for the plausibilistic view of evidence to get a hold. Suppose a scientific hypothesis has been well investigated, and has been expressed in a mathematically well-articulated theory, with the quantification and precision of measurements that such an advanced development would normally entail. In such a case, it does seem that the positivistic view of evidence is better adapted to capturing the idea of what evidence is, and to explaining how evidence works in the proof of a scientific result.

It could well be that negative evidence is more important at the earlier stages of scientific research, where weeding out implausible hypotheses in order to narrow down the avenues for possible investigation is one of the most useful functions of the research. Then at the later refinement and presentation stages, an emphasis on positive findings could be much more appropriate. The earlier negative findings could be seen, from that later perspective, as just stages along

the way toward getting a positive result in the end. This hypothesis about negative evidence in science would fit generally with our expectation that the plausiblistic theory of evidence is a better model for the abductive kind of reasoning used at the discovery stage of scientific research. It may not be a good model for the deductive and inductive kinds of reasoning that seem to predominate at the later stages of the verification of a hypothesis.

In the later stages of scientific refinement of a hypothesis, where the hypothesis may be carefully refined, its apparent exceptions dealt with, and where the hypothesis has been expressed within a precise mathematical theory, the inferences drawn may tend to be either deductively valid or statistically strong. The result is that utilization of plausible reasoning is no longer necessary. But at the earlier stages, Rescher's least plausible premise rule (1976) could be a way of evaluating reasoning that fits in very well with the conservative nature of the kinds of reasoning used in scientific research. Scientific research strives to not only be based exclusively on evidence that is reproducible, but also to try to minimize errors and blind alleys by generally under-rating rather than over-rating the value of a plausible (but incompletely tested) finding as scientific evidence. The use of the least plausible premise rule could be taken to be consistent with such practices.

But with the many different philosophies of science that have been put forward in recent years, one would expect a plurality of ways of looking at the status of scientific evidence. You can look at scientific evidence in a plausibilistic way that might fit in better with some of the postmodern views of science, or in the positivistic way that has been much more typical of analytic philosophical theories of the concept of evidence. Much depends here on how you view science, and on what philosophy of science you subscribe to. The advantage of the plausibilistic theory is that it seems to represent a more sophisticated viewpoint that includes not only the empirical and logical aspects of scientific evidence stressed in the analytical accounts, but also the pragmatic aspects that are stressed in the postmodern accounts.

7. LOGICAL AND LEGAL RELEVANCE

As indicated in Chapter 1, John H. Wigmore is the dominant figure on the relationship between relevance and evidence theory, but there has been an ongoing discussion in print about relevance chronicled in Tillers' edition of volume 1 of Wigmore's great ten-volume work on evidence (Wigmore 1983). The *Columbia Law Review* article that began this chain of discussions was authored by Jerome Michael and Mortimer Adler (1934). Their theory placed an empha-

sis on formal logic (deductive and inductive) in defining relevance. It provoked lengthy discussions among following authors on the relationship between legal relevance and logical relevance. However, Michael and Adler's theory of relevance was by no means expressed purely in terms of formal logic. It was also partly dialectical in nature.

Michael and Adler's theory was built on two components that are central to evidence theory, and that were originally found in Locke and Bentham's writings on evidence (Twining 1985; Locke 1726; Bentham 1962). These are the two notions of probative weight and argument chaining. According to Michael and Adler, a trial involves disputes about matters of fact, to be resolved by proof and persuasion, regulated by procedure (1228). They saw such a dispute as being centrally composed of "the material propositions which are disputed," or "the propositions to be proved" (1253). One proposition is the contradictory of the other, and each proposition they identified with the "ultimate *probandum*" in a case. But how is the ultimate *probandum* argued for in a trial? The arguments put forward each have a probative weight. But the relationship between the probative weight of any single argument to the ultimate *probandum* is complex. Michael and Adler observed that it is not generally the case that an ultimate *probandum* can be proved in one step. Therefore they distinguished between "a single step of proof and a line of proof consisting of two or more related steps in series" (1274). What Michael and Adler described here is the concept of the chain of reasoning previously identified by Locke and Bentham. Michael and Adler then used this concept to define relevance. According to their definition (1279), "Relevancy in judicial proof means being probative directly or indirectly of any material proposition which is an ultimate *probandum*." In these respects, Michael and Adler's theory of legal relevance appears to have both a logical and a dialectical aspect. Logic plays a role, because each single step has a form of argument. But dialectic is involved, because the single arguments are chained together and aim at an ultimate *probandum* in a trial.

One particular respect in which Michael and Adler's theory of relevance is more logical than dialectical, however, should be noted. They defined probative weight, or "probative force" as they called it, in terms of probability theory. They wrote that the answer to the question of how the probative force of a proposition is to be determined "is to be found in the theory of probability and in the calculus of probabilities contained therein" (1934, 1284). George James (1941) also argued that relevance should be defined using a notion of probative weight based on probability. James was led to this conclusion by examining common inferences made in law like the following one: *a* planned to kill *b*, therefore *a* probably did kill *b*. James (1941, 694) found this example in a passage in Wigmore. As indicated in Chapter 4, Section 3, above, Wigmore (1940,

416) used this example to show that the form of evidence used in court is inductive.[8] James, following Wigmore, asked the question whether this example should be judged to be a deductive or an inductive inference. James, like Wigmore, argued that such an inference is not deductively valid, and should not be seen as having the form of a syllogistic or deductive inference. James argued that it has what he called a "quasi-syllogistic" form that deals not in certainties but in probabilities. He compared it with the inference, 'Most A's are X, B is an A, therefore B is probably X' (1941, 697). But how can we attach an exact number or probability value to statements about a person's intentions in a given argument like the one above? James, following the analysis of Wigmore,[9] offered the following answer: (the proposition) "Men's fixed designs to kill are probably carried out, as a major premise in this argument, must mean that they are carried out more often than not" (698). But then having tested out this way of evaluating the inference on some law students, James came to the conclusion that he still didn't have it quite right.

> Persons who are unwilling to agree that men's fixed designs (at least in case of murder) are "probably" carried out—or, even conceding the fact of murder, that proof of A's fixed design to kill B establishes A, more likely than not, as B's killer—still agree that somehow this bit of evidence does have some tendency to indicate A's guilt. What form of general statement can reconcile these views? Perhaps something like this: "Men having such a fixed design are more likely to kill than are men not having such a fixed design." (698–99)

Although he persisted in trying to frame the inference by some measure of probability, James, as a legal practitioner, was aware that intention by itself cannot be taken as a premise leading to a conclusion that the defendant, in a murder case for example, is probably guilty. He wrote, "Obviously this proposed generalization does not lead from A's fixed design to kill B to the conclusion that A probably did kill B." In the end, he finally retreated from probability, as expressed in the numerical calculus of probabilities to a notion of what appears to be probable, which he called "apparent probability." What we can say, according to James, in a murder case, is "the apparent probability of his guilt is now greater than before the evidence of design was received" (699). What James has done here is to move from probability to something else

8. This particular type of inference from motive to probable action will turn out to be very important in issues of relevance of character evidence, as will be shown in Chapter 7. See Chapter 7, Section 9, especially.

9. See Chapter 4, Section 3.

that he calls "apparent probability," but that would now be called plausibility. Plausibility is based on what seems to be true, or appears to be true, according to a body of evidence in a given case. Plausible inference gives some probative weight to an inference from evidence of an intention to act to the conclusion that the act was carried out, relative to the mass of evidence in a given case. The basis of such a plausibilistic inference, according to the dialectical theory of evidence proposed in this book, is not deductive or inductive reasoning, but practical reasoning. By practical reasoning, as part of the theory of multi-agent reasoning later proposed, one person can draw plausible inferences about what another person did in a given case, using evidence including statements about the expressed intentions of that other person. But such a conclusion is only a hypothesis, judged to be plausible on the basis of an inference to the best explanation of the given facts in a case.

It seems that Wigmore, Michael and Adler, James, and the other evidence theorists of that period were taking their cue from the accepted views of logical reasoning that were the conventional wisdom in logic at the time. This conventional wisdom assumed that there were only two types of logical inferences, deductive and inductive. Although there were more than inklings of the notion of plausible reasoning in both logical authors like Alfred Sidgwick and legal authors like Wigmore, they didn't have an accepted logical theory of plausible inference to provide a structure for their intuitions. They could certainly deal with legal inferences, like those from intention to action, as being based on inference to the best explanation. But they didn't have the resources to see such an inference as based on some kind of reasoning other than deductive or inductive reasoning. Now with the advent of abductive reasoning as a widely accepted form of inference used in scientific hypothesis construction, there has been more of a move to see abduction as representing a third kind of reasoning different from deductive and inductive reasoning. The next step is to model legal reasoning, in many of the most important and common kinds of cases, as falling into this third category. But Wigmore and his colleagues, who were writing on legal evidence before the advent of these new developments, were forced by the conventional wisdom in logic of their time into the bifurcation of seeing all logical reasoning as either deductive or inductive. This restriction hampered the fuller development of Wigmore's theory of evidence so that the kind of reasoning he described could be modeled by some kind of appropriate logical structure. This historical background helps to explain why the practical parts of Wigmore's theory of evidence have been highly influential in law, while the logical aspects of the theory have been ignored by lawyers and logicians alike. It seemed like his theory, although practically very attractive as applied to the analysis of legal cases, was stunted by the apparent difficulty of developing it

any further as a means of exhibiting the logical structure of legal inferences used to draw conclusions in evidence law. Probability theory just didn't throw any bright light on inferences like those from intention to presumed action in a criminal case. As James rightly realized, to make sense of how such an inference should really be judged in a criminal case, it is necessary to retreat into the language of "apparent probability." You can't convict a defendant of murder based on a finding of intention or "guilty mind." And yet such a finding can be relevant, because it has some probative weight, judged in relation to many other facts of a case that also have probative weight. The key to properly evaluating such inferences seems to be in massing many inferences together in the evidence of a given case, where each inference may only have a small probative weight in itself. But it does not seem very useful to try to attach numbers to the probability of each inference, and then decide the outcome by some equation of probability theory. Instead, what needs to be accounted for is how each single inference fits into a large network of such inferences comprising all the known evidence in the given case. Wigmore recognized the practicality of this approach by using his method of evidence charts, a method of modeling a connected network of inferences into a mass of evidence in a given case. But what logic modeled the analysis and evaluation of such an evidence network? Wigmore and his colleagues just didn't have the resources to answer this question. Only now, with the advent of plausible inference as a third type of reasoning, can Wigmore's theory of evidence be joined up with the logical resources it needs to move ahead into the twenty-first century.

8. LEGAL EVIDENCE, CREDIBILITY, AND PLAUSIBILITY

When we come to examine the question of what legal evidence is, there is an interesting transition, because, in fact, a lot of the legal evidence used in trials is in fact (or at least, supposedly) scientific evidence. Yet this evidence is treated, processed, and evaluated in quite a different way than scientific evidence would be within a scientific field of research. Legal evidence is generally not reproducible, in the way that scientific evidence is supposed to be. Most of it seems to be based on the testimony of witnesses (including expert scientific witnesses), and the say-so of one witness (untested by the say-so of other witnesses) is admissible as legal evidence in a trial. The number of wrongful convictions by courts, often based on the testimony of witnesses who lied or were mistaken, suggests that what is considered legal evidence comes nowhere near to standards generally required for something to be scientific evidence. And scientific evidence presented by Elizabeth Loftus (1979) has shown that eyewitness iden-

tification of suspects, and witness reports generally, are much more prone to mistaken identifications and errors of fact than had widely been presumed to be the case. Although witness testimony seems persuasive, both in daily life and in the courts, as Loftus has shown, it may be in general a weak kind of evidence that should not have too much weight of plausibility.

Testimony by expert witnesses is permitted (under FRE Rule 702), in cases where "scientific, technical, or other specialized knowledge will assist the trier of fact (the judge or jury) to understand the evidence or to determine a fact in issue." The criterion that is supposed to be used to determine whether or not something is scientific evidence varies from court to court. Most jurisdictions still enforce the *Frye* rule, according to Edward Imwinkelried, which requires testimony to be based on "generally accepted" scientific theories, meaning that if a judge finds that something offered as testimony deviates from what would be generally accepted by the scientific community, then it would not be admissible as evidence. But the U.S. Supreme Court has ruled that the *Frye* rule is no longer a requirement under the Federal Rules of Evidence, and that a scientist's opinion can qualify as evidence even if it is "novel and controversial," as long as it "rests on sound scientific methodology" (Imwinkelried 1993, 120). The problem is one of having a rule that lets in helpful but new scientific developments in (like DNA evidence and voiceprint technology), while keeping out the maverick scientist's eccentric or not widely enough tested theories or hypotheses that would be highly questionable to other scientists in the same field.

One apparent problem arises from the difference between evidence as defined by the new plausibilistic theory and legal evidence as determined by a court, based on statutes as interpreted by a court. In fact, something that is taken to be evidence in one court, or in one state, or in one country, may not be taken to be evidence in another court. Different states have some differences in evidence law. Such differences are the result of differences in the wording of their evidence code, and of any differences in judicial rulings about evidence. But you might think that either something should be evidence or it should not, from a logical point of view, no matter how a particular court rules. According to the new plausibilistic theory of evidence, a given argument either is evidence or is not. Whether something is evidence or not (or evidence of a particular kind) depends on what it is being used to prove, within a framework of a goal-directed dialogue exchange. Does this difference pose a problem? To explain this difference we need to reconsider Wigmore's notion from Section 7 above that there is a logical notion of relevance underlying the legal notion of relevance. The relation between the notions is not direct or one-to-one. Presumably, the legal notion of relevance appealed to in court rulings, and in rules of evidence, is an abstract logical notion underlying the operations of the various

mechanisms and judgments used in order to rule on relevance in a given case. The same points made about relevance by Wigmore can be made about the notion of evidence itself. A theory of evidence is only a logical abstraction that presents a model of the structure of reasoning underlying the legal notion of evidence, as exhibited in rules of evidence, and how these rules are applied to cases. The theory doesn't explain everything about such a mass of complex and evolving data. It only presents a relatively sparse model of the reasoning used in this mass of data, at a high level of abstraction. Its internal logical structure as a coherent theory is important. So it will diverge from the data in some cases. It will never perfectly model or explain all the data. It competes with other theories that also purport to explain the mass of data. In short, we shouldn't be taken aback by the difference between evidence as defined by the new theory and evidence as determined by a court. Such differences are interesting to explore, and try to explain, but we shouldn't expect them not to exist at all. Logic should be one element underlying evidence law, but the law has other goals as well, like justice or fairness.

Yet another potentially worrisome fact about legal evidence is the assumption taken for granted by legal rulings on evidence that if something is thought to be scientific evidence (either generally, or by some particular scientist) in some field or discipline external to the law, then it may be presumed that it is also legal evidence. This dependence on sources, and variability of standards in acceptance and utilization of evidence, would seem to suggest that the third part of the plausibilistic theory of evidence—the use of evidence in a framework like that of a field or discipline—is much more important than it might have initially seemed. Acceptance in a discipline or field of knowledge is presumably based on testing of some given (reproducible) data by scientists in a field, but it may bring in other factors as well. It may depend on which theories are favored by scientists, at any given time, or on what kind of data has been collected.

Another questionable assumption here is whether both scientific evidence and legal evidence are "evidence" of the same kind, or at least enough of the same kind that both can be called "evidence," and that both could come under one single concept of evidence. Critics, particularly among scientists, one might think, would presumably be widely available to question this assumption. But one asset of the plausibilistic theory is that it offers a way of preserving the view that both scientific evidence and legal evidence are evidence in the same sense of the word, even if the evidence is used in quite different ways for the purposes of these two frameworks.

When one first looks at legal rules of evidence (from the viewpoint of an observer who is not a lawyer) what is impressive is how nearly all of this so-called evidence is based on someone's saying that something is true. Those who

are using the evidence to make up their minds about the truth of some claim do not themselves have direct access to what this person supposedly saw or drew on as the factual basis of the report. The first problem one thinks of with this kind of "evidence" is the problem of verifying evidence that comes from what another person reports. Couldn't this person be lying, or exaggerating, or otherwise giving a less than fully accurate account of what supposedly took place? In other words, couldn't what was said to be based on some data or appearances, ultimately turn out to be not so based at all? It seems that much of the function of the rules of evidence used in law is to try to deal with this problem. Thus the witness must swear an oath, the witness must be open to questioning in court of a kind that might reveal any problems, and so forth. It seems that so much legal evidence is subjective—in a way that scientific evidence is generally not taken to be, because of its reproducibility—that it seems to be different in kind altogether from scientific evidence. How could the plausibilistic theory be extended to cope with a concept of legal evidence that lacks this requirement of reproducibility? For it thereby apparently violates the requirement that genuine evidence should be based on genuine appearances, so that there is a plausible link to reality, and to the truth of a matter. How can it be said, in other words, that so-called legal evidence really is a (genuine) kind of evidence?

How the plausibilistic theory needs to be extended and refined in order to cope with this subjective aspect of legal evidence is by adding the following interpersonal idea of the conveying of an appearance or impression of what seems to be the case from one person to another. Here the idea of 'person' brings in the legal idea of competence. A competent person in this sense is an individual who is capable of apprehending appearances in such a way that she can process and understand what has happened. A competent person, in this sense, must be "in a position to know," so that what she reports is based on what she knows to be true, or has reason to think to be true. The argumentation scheme for the argument from position to know given in Walton (1996b, 61) has the following form, with two premises and a conclusion: (1) *a* is in a position to know whether *A* is true (false), (2) *a* asserts that *A* is true (false), (3) therefore *A* is true (false). What is needed to add to the usual framework of deductive logic in order to build the structure for this kind of argument is the idea of a person or an individual who can be the receptor of some evidence. When she passes on a report of it to someone else, there can be a presumption that what she reports is evidence (because of what it was presumably based on). This is the idea of a so-called agent in AI, an entity that can grasp incoming information, including the observed consequences of its own actions, and respond by carrying out actions based on this information (Caglayan and Harrison 1997).

The agent must be capable of carrying on a dialogue with another agent, so that it understands incoming messages, and can respond to them by giving out messages the other party can respond to. What needs to be added to the plausibilistic theory, as developed so far, is the idea of an agent as a source of information. The idea is that one agent passes on a report of some data to another agent, and then the second agent uses this report as a basis for making up his mind to accept some other proposition. Acceptance is based on the "evidence" furnished by the report (and on other factors, as well, like how credible the agent is who made the report). The idea is that evidence can be "transferred" from one agent to another, in this way, so that it still remains "evidence" even when it is used by the second agent (who did not observe the original event, or was otherwise not directly privy to the data).

How this transference idea needs to be implemented in the theory is that the plausibility of the proposition claimed by the first party is judged by the second party. Whether the second party has to accept that proposition or not, and then use it for some purpose, must be evaluated by weighing in an assessment of the first party's credibility by the second party. The second party has to ask "How credible is this person, as someone who can be relied on to give an accurate and trustworthy account of the matter?" before deciding how much weight of plausibility to give to what she claims. The new idea is that of credibility. Propositions are plausible (or not), and persons are credible (or not), and a judgment of credibility should influence a judgment of plausibility, in the typical kind of case of use of evidence in law.

But going back to the plausibilistic theory, and its formulation using the least plausible premise rule, the basing of legal evidence on the credibility of a witness leaves more than one weak link in the chain of reasoning used to justify most legal evidence. If the first requirement of the plausibilistic theory of evidence is not met in such cases, and it is possible or seems somewhat plausible that the witness is mistaken or lying, or giving a misleading picture of what happened, how is it that such a slender line of plausible argumentation can even be taken as evidence at all? And even if what the witness says is based on what really happened, according to her impression of it, aren't the inferences that are drawn from such testimony of a fallible kind that could be subject to mistaken interpretations, and the drawing of misleading or erroneous conclusions? I think that in order to even attempt adequate answers to these questions, the pragmatic dimension of how evidence drawn from witness testimony is used and tested in the trial process, needs to be taken into account. The trial process in North America is an adversarial system, which has the form of a dialectical exchange of argumentation between the two sides—the prosecution and the defense—and the outcome is based on requirements of burden of proof. In a

criminal case, the prosecution has the burden of proving the allegation "beyond reasonable doubt" (supposedly a high standard of plausibility). If there is reasonable doubt, the defense is supposed to bring it out by using the strongest possible arguments to criticize the weak points in the argumentation of the prosecution. It is supposedly the safeguard set in place by this sort of dialectical framework that overcomes the apparently slender and fallible nature of so-called "legal evidence," and makes plausible the classification of it as a kind of (genuine) evidence.

9. EXPERT TESTIMONY AS EVIDENCE

Another large area of concern of the Federal Rules of Evidence is that of expert testimony. Whereas a nonexpert witness is limited to presenting the facts as she saw them, an expert witness can draw inferences from these facts, as long as such inferences do not go too far in "embracing an ultimate issue to be decided by the trier of facts" (FRE 704, 63). What these rules allow is that an expert can be brought in to testify, and this type of testimony constitutes a special category of evidence that has higher status than the testimony of a nonexpert witness. But attacking the character of an expert witness for veracity is allowed.

The plausibilistic theory can accommodate the assumption that expert testimony is a kind of evidence that has a special status, derived from the assumption that an expert in a skill or domain of knowledge has special access to a body of data or knowledge that an nonexpert in that field does not possess. The appeal to expert opinion was traditionally treated in logic under the heading of the *argumentum ad verecundiam* (which really means something more like "argument to respect"). This type of argument has traditionally been classified as a fallacy by logic textbooks, but the recent trend is to see it as a reasonable (plausible) form of argument that can be misused in some cases, and that is often persuasive even when it is not really a good basis for rational acceptance of a conclusion. Seen in this way, appeal to expert opinion could be justified as a reasonable kind of argumentation generally, as used by the courts, but as one that can be misleading, and that not too much weight should be put on, without giving the particulars of use of the argument a thorough questioning.

The big problem for the new theory is not how to define or analyze the nature of scientific evidence, at least in any depth. That very worthwhile project, realistically speaking, is not within the scope of this book. The big problem is to grasp how scientific evidence, or what is taken to be such, comes over the barrier and passes into legal argumentation in a trial as now constituting legal

evidence. Before it was scientific evidence, or that is the assumption. But now it is transformed by some mysterious process into legal evidence, simply in virtue of its being scientific evidence, and in virtue of other criteria, like its being relevant in the given legal case at issue. How does such a transformation work? And how should it be determined that some piece of allegedly scientific evidence qualifies as being legal evidence? These are the big questions to be answered by the new theory.

The answers have mainly to do with the context of dialogue in which something is put forward as evidence in a case. In the new theory, the problem is solved through the notion of the dialectical shift. First of all, a particular argument was evidence in a given scientific discipline because it met the standards of that discipline. It was, let's say, scientific evidence in field *D* because it was based on findings collected in the way that is accepted in *D*, and then, by inference, a conclusion was drawn from the premises by the logical methods and standards that are generally acceptable in *D*. But to say that it is evidence in scientific field *D* is not to say that it should qualify as legal evidence in a given trial, or in some other legal context. To be relevant in that context, a shift must be made to the standards of relevance and acceptability for arguments in that context.

So then we must look at the scientific argument from a legal point of view. If the case at issue is a trial, we must ask—how would such a scientific inference be relevant in the trial? In other words, we must ask what probative weight it has in the trial as a line of argument that bears on the conflict of opinions that is the basic issue to be resolved in the trial. That is the logical question of relevance. But then as well, it needs to be asked whether it is legally relevant in the trial. In other words, would it be excluded for some reason by the rules of evidence applicable in that jurisdiction? The point is that, in asking such questions, the framework and perspective is different from that of scientific evidence. A shift has occurred, and we now need to evaluate relevance from the logical and legal perspective of the trial in which the supposed evidence may have some weight as legal evidence. As legal evidence it needs to be evaluated in relation to the dialectical requirements of the trial in which it is supposedly going to be used as evidence.

The first questions then are ones of getting into the trial as evidence. These are questions of getting over the barrier. They are questions of qualifying as legal evidence initially in a trial. The three questions about any scientific argument at this stage are: (1) Is it admissible? (2) Is it relevant? and (3) Is it materially relevant? To make these judgments, according to the new pragmatic theory, we have to look at the trial as involving a persuasion dialogue in which the purpose is to resolve the central conflict of opinions at issue in the trial. But then from there, we have to go on to ask what the probative weight of the

evidence should be, and whether the evidence should be regarded as sufficient to prove the conclusion at issue. With respect to answering all these questions, the dialectical frameworks that most often need to be invoked are those of peirastic and exetastic dialogue. In a trial, expert scientific evidence put forward by the one side or the other is open to examination by both sides. In particular, it is open to cross-examination. What weight, or possibly even what relevance the testimony is judged to have will depend on how it fares in that process of questioning and answering that is known as examination. It is here that the trier will decide what weight and relevance the evidence really has in deciding the outcome of the trial.

The form of the argument, in all such cases, will be that of appeal to expert opinion. The one side, whether it be that of the plaintiff or the defendant, will bring forward expert scientific testimony, in such a form that is taken to support the line of argument put forward by that side. The expert will testify to these particular statements. The expert and the attorney will then draw out conclusions from these statements. These conclusions will presumably support the examining attorney's case, and of course, the attorney will try to show how they support it. This much of the argument has the form of appeal to expert opinion. The framework is that of an information-seeking dialogue, as questions of information are put to the expert. But of course, persuasion dialogue is also involved, as the answers will be relevant to the issue being tried. And peirastic dialogue is involved, as the attorney probes into the expert's reasons for having the opinions she has put forward. Then the other side has its chance to cross-examine. Here the dialogue is most likely to be comprehensible when viewed from an exetastic perspective. The attorney may probe into the reasons given by the expert and subject them to critical questioning. He may even point out how they conflict with what other experts in the same field say, or how they conflict with other statements made by the expert who is testifying. He may even go on to argue that the expert is biased, and to challenge her credibility on that basis.

How are we to understand such a dialogue, and evaluate the argumentation in it? The answer is that we need to see it as a form of critical questioning of the appeal to expert opinion type of argument. In this light, the argumentation should be seen, at least in principle, as appropriate and legitimate, from a logical and legal point of view. When the attorney raises critical questions about what the expert said, and about what inferences may or should be drawn from what was said, it is all part of the legitimate and appropriate critical questioning of the argument from expert opinion.[10]

10. The appropriate critical questions for the appeal to expert opinion were presented in Chapter 2, Section 4.

But how are we to judge the argumentation when the attorney goes beyond critical questioning, and starts to attack the testimony of the expert by undermining the reasons on which it was supposedly based? The attorney, as mentioned above, may even attack the character of the expert, and indicate to the jury that she lacks credibility. This kind of attack would normally be considered quite hostile, and it is the very kind of argumentation that would be condemned in traditional logic as fallacious. But in the specific legal framework of the trial, it often needs to be seen as legitimate, as necessary, and useful, if the trial is to be successful, on the grounds that all the relevant evidence has been considered. Why is this so? And how could it be justified? The answer, according to the new theory, is to be found in the exetastic nature of cross-examination as a type of dialogue. The persuasion dialogue works best if it is based on the most complete and deep information available on the subject being discussed. In such a case, persuasion dialogue is joined to information-seeking dialogue, and is based on it. The one dialogue supports and enhances the other. So the shift from the one to the other is useful and legitimate. The trial is basically a type of persuasion dialogue. But it will only work very effectively if based on the most complete information possible. This principle may be seen as a whole-evidence assumption. If any materially relevant evidence of sufficient weight is missing, the outcome of the trial may go in the wrong direction. But now, we need to recall that in a trial, probing into the reasons behind an expert's professed opinion, or even attacking the credibility of that expert, is a relevant kind of evidence that may be quite important, in some cases, in deciding the outcome of the trial. Exetastic dialogue, in short, as well as information-seeking dialogue, can be extremely useful in eliciting the relevant evidence needed to make the primary persuasion dialogue in the trial complete in examining all the relevant evidence, and successful in arriving at a resolution of the conflict based on all the relevant evidence that has significant weight in the case. For these reasons, the exetastic subintervals in the trial need to be seen (depending, of course, on the particulars of the case) as relevant within the broader framework of persuasion dialogue.

To illustrate how this analysis works very simply, consider a case where you are having an advice-giving discussion with your financial adviser, when suddenly you start to attack her with all kinds of *ad hominem* arguments. You ask her whether she has lied in the past. You accuse her of having lied on several occasions in the past. You call her a liar. And then you draw out chains of inferences from what she has been documented as saying in the past, and show how these inferences lead to contradictions. In such a context, this kind of argumentation would be seen as impolite and inappropriate. It would certainly be seen by the financial adviser as irrelevant, unless the other party could offer

some explanation of why he is engaging in these personal attacks. But contrast this case with one where two experts disagree in a murder case on whether the defendant understood what he was doing at the time of the alleged murder. One psychiatrist says that the defendant knew exactly what she was doing while the other says that she was temporarily delusional in a way that meant she did not understand the nature and quality of her action at the time. In this kind of case, suppose the cross-examining attorney traps the psychiatrist in what appear to be contradictions in his testimony, and even tries to get the psychiatrist to admit that he has lied in the past. Then the attorney accuses the psychiatrist of being a paid professional expert witness who will say anything for the right fee. This kind of *ad hominem* attack, if carried out in the right way in the right circumstances in a case, could be judged to be relevant. The context is vital to understanding why. Suppose the whole case hinges on the insanity plea, which in turn hinges on the expert testimony of the two experts, who flatly disagree with each other. How is the jury going to decide? Everything may hinge on the testimony and the credibility of the two experts. It may be that the jury has no other evidence to go by that throws much weight one way or the other on the issue. In such a case, for the attorney to engage a probing exetastic argumentation against the testimony of the psychiatrist, even to the extent of using *ad hominem* arguments that challenge his objectivity and credibility, can be seen as relevant. But to see why it is relevant, you have to see how that exetastic dialogue is embedded in the persuasion dialogue that is the main type of dialogue in the trial. You have to imagine the jury trying to arrive at a decision, and try to see how they will deliberate on the question, once the trial reaches that stage. They are not experts in psychiatry, but they need to make some assessment of the weight of the psychiatric testimony presented on both sides. The only person who can help them constructively with that very difficult decision is the examining attorney, who must ask the right questions that probe into the credibility of that testimony, and bring out what it says, in layman's terms that the jury can understand and deal with. For this purpose, the *ad hominem* arguments in the exetastic dialogue of the cross-examination could be all the jury has to go by. If so, they should be seen as relevant, from the viewpoint of the main persuasion dialogue in the trial.

10. PROBLEMS AND CONCLUSIONS

The giving of the expert witness the power to draw inferences from observed data is something that makes expert testimony under the Federal Rules especially worrisome, from a logical point of view. But as Imwinkelried points out,

this choice is one side of a dilemma: "Since the witness cannot verbalize all the primary sensory data, the choice facing the courts is either to permit an opinion or to altogether deny the jury the benefit of the witness' testimony" (1993, 116). Imwinkelried cites a case in point (117). Suppose a pathologist is called as an expert witness in a homicide trial, and a photograph he is shown pictures a reddish discoloration on the cadaver. The jurors can see the same photograph, but they are not in a position to estimate the time of death from what is seen there, in the way that the pathologist is. So the pathologist can be asked to make such a determination, and even though it is an inference drawn from what is seen, it is admissible as evidence. Of course, allowing experts to draw such plausible inferences, and then count their conclusions as "evidence," leaves a lot of room for judgment and interpretation within what is taken to be evidence. Still, not allowing such inferences to be made by experts might leave so much out of the total body of information available to the jury that their ultimate decision might even be more likely to be wrong, or to be based on incomplete evidence. On the other hand, this latitude to draw inferences also leads to the common kind of deadlock in the courts where both sides have their experts, and a "battle of the experts" ensues, which confuses the jury, and wastes a lot of time and money.

One of the gravest problems with the plausibilistic theory is how to extend the probative function so that the credibility of the proponent can be taken into account in determining the respondent's rational acceptance of evidence put forward by that proponent. A related problem is whether or how this notion of credibility can be used to distinguish between scientific evidence and legal evidence, or at least different kinds of evidence, in some insightful way. If the data cited as the basis of the proponent's evidence is not reproducible (as it should be in the case of scientific evidence), then the respondent does not have first-hand access to it. He cannot experience the (alleged) impressions for himself, and make up his own mind on what they should be taken to show. The best he can do is to "take the proponent's word for it." Typically, this is just the kind of case of legal evidence used in a trial. What can be done, in such a case, to say that, somehow, the probative function can work, and can be fulfilled, so that the requirements for producing evidence can be met? What has to be done is to bridge the gap by introducing the concept of the credibility of the proponent, as a collaborative participant in a dialogue, and then using the proponent's credibility as a way of allowing the respondent to accept the vouched-for data as plausible.

Generally speaking then, what needs to be added to the plausibilistic theory of evidence is a credibility function attached to both participants in such a way that the following sort of inference can be justified. Suppose the proponent

claims that *A* is true on the basis of some evidence she has experienced first-hand, but the respondent is not in a position to directly verify this claim by having the same kind of first-hand experience himself. Then the respondent should be able to judge how plausible the claim that *A* is true should be taken to be, based on his estimate of how credible he thinks the proponent is, as a sincere and collaborative participant in the dialogue. Thus a credibility weighting is needed, to work alongside the plausibility rating determined by the probative function.

It needs to be also based on a deeper understanding of the structure of argument from position to know, and the key to it relates to features of this form of inference that have so far been little studied. More needs to be known about how arguments from position to know are based on a credibility function that relates the plausibility of the inference to the credibility of the agent. There are many details of how this credibility rating should work that need to be filled in. Clearly the proponent's character, and especially character for veracity, should be a central factor in a credibility rating. Bias should be another factor—dialectical bias, meaning that a participant's argument is one-sided when it should be balanced and two-sided. In the case of evidence based on an appeal to expert opinion, the credibility of an expert also needs to depend on how well qualified and how experienced that expert is. At any rate, the credibility function is a large area that needs to be investigated, especially if the plausibilistic theory is to accommodate the notion of legal evidence.

The acceptance-based nature of the plausibilistic theory makes the theory new and controversial, but it can be argued that this aspect of the theory makes it especially favorable as a theory of legal evidence. Jonathan Cohen has asked the important question of whether a jury's verdict should declare what its members believe or what they accept (1992, 17). The importance of this difference is revealed by a case cited by Cohen (117). In this case, a jury member has a conflict. As a result of a racial prejudice, he has "a deep and unalterable conviction that the defendant has been proved guilty," but on the strength of the evidence presented in court, he thinks it would not be reasonable to accept the proposition that the defendant is guilty. Which way should he vote? And more generally, which notion should the concept of legal evidence be based on—belief or acceptance? In Cohen's opinion, it should be based on acceptance, and I take it to be a strong advantage of the plausibilistic theory of evidence, as a theory of legal evidence, that its structure is one of acceptance (commitment) in a dialogue framework.

The acceptance-based and dialectical nature of the plausibilistic theory may make it seem unattractive as a theory of scientific evidence, especially to those schooled in the belief and knowledge epistemology dominant in recent times.

But here too, there are some advantages, as indicated above, especially in applying the theory to the discovery stage of scientific research, where abductive reasoning is much in use. One of the implications of the plausibilistic theory is that the kinds of arguments used in science and law, and designated as "evidence" within these frameworks, are a lot more accessible to evaluation by nonexperts in such fields than may have been previously thought. This conclusion goes against the longstanding trend to see these areas as being beyond the understanding or judgment of the nonprofessional. According to the plausibilistic theory, the argumentation used in these specialized fields is fundamentally the same as that used in everyday reasoning, with certain special features, rules, and standards added on, for the specific purposes for which the framework was designed by its users. Scientists and lawyers will likely find this conclusion not very inviting, since it makes their notions of evidence seem less special and specialized, less based on objective mathematical theories of probability that nonspecialists cannot evaluate or challenge with much confidence. But there is evidence that this Pascalian viewpoint is less popular than it once was, and the plausibilistic theory is an attractive alternative to postmodern approaches to evidence that would appear to go much further in the direction of subjectivity than even the plausibilistic theory would allow.

Another application of the plausibilistic theory of evidence is to the task of teaching critical thinking as a skill learned in university courses on informal logic, and like courses. It is presumed that the students are using these skills for evaluating arguments and information they would commonly encounter in daily activities. The arguments studied would encompass political arguments, arguments used in advertising, argumentation in everyday deliberations, philosophical argumentation, and so forth. An attractive feature of the plausibilistic theory, however, is that it is applicable to scientific argumentation and legal argumentation as well, although it is to be expected that students will need some background or special preparation to deal with arguments depending on special rules and requirements for these contexts of use. The plausibilistic theory does have a definite critical bite, in all these areas. And so it is a useful tool for evaluating arguments of the kind traditionally associated with certain informal fallacies, like appeals to expert opinion, appeals to ignorance, and *ad hominem* arguments, all arguments that frequently depend on considerations of credibility, as well as plausibility.

But no theory of evidence can get very far without dealing with the questions of legal and scientific evidence. And in fact, much of our concern has been to applying the plausibilistic theory to these two domains. So two other areas of application are to the logical foundations of legal evidence and scientific evidence, posing philosophical questions about how or whether these two institu-

tionalized concepts really rest on or represent some underlying logical idea of evidence. In particular, many questions have been raised about evidence in law, and what kinds of logical structures and forms of inference it is supposedly based on. If the new plausibilistic theory does turn out to be a better explication of legal evidence than its competitors, it could be used as a basis for teaching skills of legal argumentation in dealing with evidence.

7

RELEVANCE IN PERSUASION DIALOGUE

A general structure is presented in this chapter that can be used to help judge a given case to see whether an argument (or other move in argumentation) is dialectically relevant or not. The method of argument extrapolation is shown to be useful to test an argument given in a particular case, to determine if it meets the requirements of relevance appropriate for the type of dialogue the argument was supposed to be a contribution to. Some cases of various kinds are used to illustrate the application of the test. One is a classic case used in Copi (1982), illustrating the fallacy of irrelevant conclusion. Another is an argument used in a political debate in the Canadian House of Commons. The famous O. J. Simpson criminal trial is also cited to show some of the problems of relevance in evidence

law that can occur in hard cases. However, the intent of Chapter 7 is to analyze the logical notion of relevance rather than to deal with the many controversies and practical problems of ruling on material relevance in specific cases. The main theoretical problem addressed is how relevance should be modeled in a dialectical system that can be formalized and implemented as a logical dialogue system. Such a dialogue system needs to be an abstract and general structure of the kind that would be useful for logic and artificial intelligence applications.

To try to keep the initial presentation of the structure relatively simple, clear, and manageable, two restrictions are adopted. One is that the structure presented is designed for use specifically in the persuasion dialogue, modeled as a dialectical system in Walton and Krabbe (1995). The other restriction is that the aspects of the cases chosen for study are relatively simple in certain respects. The focus of their analysis is on what is generally called logical relevance rather than on legal relevance, with all the complications of exclusions, restrictions, and jurisdictions that would be introduced by considering legal relevance of the kind represented, for example in the FRE. But it has already been argued in Chapter 5, following Wigmore (1940), that there is a close relationship between the concept of logical relevance (or, as I would put it, dialectical relevance in the critical discussion) and the concept of relevance in the legal trial. It is a close enough relationship to encourage the hypothesis that the legal concept of relevance embodied in the FRE is based on an underlying concept of logical relevance that can be modeled in the critical discussion (persuasion) type of dialogue.

1. PERSUASION DIALOGUE

Attempts to define a practically useful notion of relevance using a formalistic deductive calculus have clearly failed (Walton 1982). And it is clear the only potentially useful way to define relevance for logic is as a dialectical notion of how an argument is used in a given case to relate to some issue that is supposedly being discussed. To evaluate relevance, then, we have to look at the global context of conversation in which an argument was used for some purpose, for example, to resolve a conflict of opinions, that is, the issue supposedly being discussed in the given case. Then we have to ask whether the given argument can be extrapolated forward so that it connects up with the propositions on one side or the other of this conflict of opinions that is the issue of the dialogue. Can the given local argument be chained forward in a connected sequence of reasoning that is probatively useful in the dialogue? That is, does it bear on the issue in the given case? If such a connecting up between the given local argument and the global issue of the dialogue can be made, the given local argument is relevant (dialectically relevant, to be more precise). Otherwise, it is not. But

clearly this type of determination of relevance is dialectical in nature. It has to do with how a given local argument is used, or can be used, to bear on the issue of a larger dispute that is part of the context of the local argument in a given case (insofar as that context is evident in the given case). The central type of dialogue to begin with is the persuasion dialogue.

The first task is to define the structure of the persuasion dialogue in a more precise way. To begin, the basic elements of the persuasion dialogue, as described in Chapter 5, need to be recapitulated. The first elements of a persuasion dialogue that need to be mentioned are the two participants, called the proponent and the respondent. The next element is the set of two opposed propositions (statements) that comprise the issue to be resolved in the dialogue. One proposition is designated as the thesis of the proponent and the other proposition is designated as the thesis of the respondent. The two theses stand in what is traditionally called a relation of opposition to each other. The strongest form of opposition of a pair of propositions is that of *contradictoriness* (negation), meaning that the one proposition is true if and only if the other is false. It is not possible for both propositions to be true, and it is not possible for both propositions to be false. For example, if the proponent's thesis is the proposition 'Bob killed Ed,' the respondent's thesis would be 'Bob did not kill Ed.' Both participants have the same goal—to prove their own thesis from the commitments of the other party. What determines the dialectical relevance of any argument (question, proposition, etc.) in a given case of a persuasion dialogue is its relationship by chaining forward to the thesis to be proved.

The type of persuasion dialogue described above could be called a *dispute*, meaning that it is a symmetrical type of dialogue where the arguments of the one party are strongly opposed to those of the other, and each side has a burden of proof to prove a designated proposition. There can also be another type of persuasion dialogue where the goals of the two parties are different. The proponent, to be successful, must prove her thesis, whereas the respondent, to be successful, only has to raise questions about the proponent's attempted proof that throw doubt on it, showing that it has not been successful. For example, suppose the proponent's thesis is 'Bob killed Ed.' And suppose the respondent, to win the persuasion dialogue, only needs to show that there are reasonable doubts about the truth of this proposition. This account is a simple sketch of the basic elements of a persuasion dialogue. More technical details are given in Walton and Krabbe (1995, chap. 4).

The essential characteristic of persuasion dialogue, according to Walton (1989a, 4–10), is that the arguments used by both parties must be based on premises that are commitments of the other party. In a Hamblin structure of formal dialectic (Hamblin 1970, 257), each participant in a dialogue has a *com-*

mitment set, a set of propositions that keep a running tally of an arguer's commitments. As each speaker makes a move in the dialogue, propositions are added to or deleted from this set, depending on the type of move made. For example, if a particular proposition is asserted at some move by a participant, then that proposition is added to her commitment set.

Basically, in a persuasion dialogue, two arguers ask questions and put arguments to each other, where the aim is to get the other party to become committed to propositions that can be used to prove one's own thesis by a connected chain of argumentation. Each individual inference in the chain is supposed to be valid, or structurally correct, according to the forms of argument appropriate for use in this type of dialogue.

One particular type of persuasion dialogue is the critical discussion, where the goal is to resolve a conflict of opinions by rational argumentation. A successful critical discussion, according to van Eemeren and Grootendorst (1984, 86), ends with a resolution of the conflict, and otherwise it is "not clear whether the discussion has had any point." But in types of persuasion dialogue other than a critical discussion, the dialogue may be regarded as successful if the conflict is unresolved but throws light on the issue by revealing new commitments through strong and persuasive arguments that make the viewpoints on both sides more sophisticated and less susceptible to refutation.[1]

In a persuasion dialogue, various kinds of moves are allowed, including the asking of questions, the answering of these questions, and the putting forward of arguments. When it comes to the putting forward of arguments, there are four basic requirements that determine what is an argument that has been used successfully and appropriately by a proponent to prove a conclusion in the dialogue.

(R1) The respondent accepts the premises as commitments.
(R2) Each inference in the chain of argument is structurally correct.
(R3) The chain of argumentation must have the proponent's thesis as its (ultimate) conclusion.
(R4) Arguments meeting *(R1)*, *(R2)*, and *(R3)* are the only means that count as fulfilling the proponent's goal in the dialogue.

Some possible exceptions to these rules of a rational argument concern hypothetical uses of arguments.[2] We sometimes use arguments that are *hypothetical* in the sense that the premises are not commitments of the respondent, at least

1. The role of the critical discussion in legal argumentation has been analyzed by Feteris (1999). The maieutic function has been analyzed in Walton and Krabbe (1995).
2. Discussed in Hamblin (1970, chap. 7) and Walton (1996a, chap. 1).

right now, but are propositions that the respondent might concede provisionally, or "for the sake of argument" as assumptions (or presumptions). This practice seems to violate *(R1)*, but really it does not, because in the end, for an argument to count as rationally persuasive to a respondent, it must be based on premises that he has come to accept (as commitments) in the dialogue. Ways of dealing with this complication are implemented by the more complex structures of persuasion dialogue in Walton and Krabbe (1995).

What is meant by *(R2)* is that an argument is structurally correct if the conclusion follows from the premise as an instance of a type of argument recognized by the participants in the dialogue. The appropriate rules of inference could be a set of rules for deductive logic, like propositional calculus. But the kinds of inference structures representing forms of argument most often used in presumptive reasoning are argumentation schemes of the kind described in Chapter 2. Requirements *(R3)* and *(R4)* are closely related to the concept of dialectical relevance in argumentation, and need to be discussed in this light.

2. CHAINING OF ARGUMENTS

(R2) and *(R3)* depend on the possibility of chaining together a sequence of inferences in argumentation. This idea is familiar in work on artificial intelligence, where so-called "forward chaining" and "backward chaining" are common features of how reasoning is done using premises in a data base. To make a simple example, take a *modus ponens* type of inference based on a rule (or conditional proposition, as it is called in logic) and a fact (or simple proposition).

(I1) If *A* then *B*

A

B

This inference can be "chained together" with another one—say, for example *(I2)*.

(I2) *If B* then *C*

B

C

The two inferences *(I1)* and *(I2)* can be chained together in a longer sequence of argumentation, because the conclusion of *(I1)*, namely the simple proposition *B*, can be utilized as a premise in *(I2)*. The simple example above would be a case of forward chaining of an argument because the line of argument "moves forward" to prove the ultimate conclusion *C*. But in so-called abductive inference sequences in artificial intelligence, the user (or the system) is given the conclusion *C* and has to "reason backward" to determine what the premises were that *C* was based on (Josephson and Josephson, 1994).

Such chaining together of subarguments into a longer chain of argumentation is also a familiar phenomenon in critical thinking (informal logic) techniques of argument diagramming. Here the so-called "serial argument" is a chaining together of two arguments, where the conclusion of one functions as a premise in the next one—just as in the kind of example sketched out above (Walton 1996a, 89–91). Such a chaining of argumentation can be modeled as a pathway of reasoning in an argument diagram (of the kind familiar in informal logic), using the new method of argument diagramming in Walton (chap. 6). In this method, a *line of reasoning* is an alternating sequence of propositions and inference-steps where each step goes from one proposition to the next. A *pathway of reasoning* is a line of reasoning in which all the propositions are distinct.[3] A pathway of reasoning, in other words, is a line of reasoning in which there is no circular line of reasoning. The pathway of reasoning gives a picture of where an argument is going, looking at the argumentation in a global perspective, and not just as a single step of inference.

In a persuasion dialogue, in any given case, you can view the argumentation on one side as a connected chain of argumentation that (ideally) uses only premises accepted by the other side, and that has a particular proposition as the ultimate conclusion at the end of the chain. This proposition is the thesis that the participant on this side of the dispute is supposed to prove. In a persuasion dialogue, this proposition is designated prior to the argumentation stage of the dialogue (at the so-called confrontation stage, where the theses of the both sides are identified). Once this proposition is identified for a participant, it provides a target, toward which all of her arguments are to be directed, as her ultimate conclusion to be proved. This chaining together of the argumentation on one side of a persuasion dialogue, with the directedness of the chain toward a single proposition, is an ideal of successful (functional, appropriate) use of argumentation. It is this dialogue format that provides a normative requirement to help us judge, in a given case, what is or is not a good (correct, appropriate) argument in this context of use. A good (useful) argument is one that fits into such a chain as a subargument of the longer chain that culminates in the arguer's thesis.

3. See the formal definitions in Walton (1996a, 189).

Not only is the idea of the chaining of arguments a clear and well-defined structure that can easily be modeled by the current technology in use in artificial intelligence; all the other requirements of the persuasion dialogue, *(R1)*, *(R2)*, and *(R4)*, are also easily modeled using this technology. The commitment set is just a set of propositions that can easily be modeled as a set of propositions in a computer database. How the commitment set is managed, by inserting propositions into it and deleting propositions from it at each move in a dialogue exchange, is clearly described by Hamblin (1970; 1971).

There are problems here. The most difficult one is to define the conditions under which retractions of commitments should be allowed. But these problems have been dealt with in Walton and Krabbe (1995) by constructing several different formal models of persuasion dialogue that have rules of retraction appropriate for the rigor or permissiveness of the dialogue exchange. Within this framework, persuasion dialogues meeting the requirements *(R1)* to *(R4)* can be formalized as clearly defined logical structures.

In the formal system of persuasion dialogue $\mathbf{PPD}_0$ constructed by Walton and Krabbe (1995, 149–54),[4] there are four kinds of rules. *Locution rules* indicate the types of permissible moves. *Commitment rules* govern the insertion and deletion of propositions from commitment sets. *Structural rules* define turn taking and which types of moves can or must follow other moves. *Win and loss rules* define the participants' goals in the dialogue, and what counts as a sequence of moves that successfully fulfills one of these goals. One of the kinds of moves allowed in $\mathbf{PPD}_0$ is an *elementary argument* (128), which is essentially a local argument, e.g., of the form *modus ponens*, of the kind so familiar as the standard kind of argument treated in logic textbooks. These elementary arguments can be chained together in a $\mathbf{PPD}_0$ dialogue, and in fact, a participant's total argumentation in support of her thesis can, at the concluding stage of a persuasion dialogue of this type, be seen as a lengthy chain of (hopefully) connected elementary arguments. So argumentation chaining is modeled in a $\mathbf{PPD}_0$ type of formal dialogue structure. And a $\mathbf{PPD}_0$ dialogue is the kind of structure in which all four of the requirements *(R1)* to *(R4)* are appropriate

Theoretically, the problem of relevance has now been solved, because all one has to do to determine relevance of a specific argument (question, proposition, etc.) in a given case is to judge whether that argument can be chained forward to the ultimate thesis to be proved in the case. But from a practical viewpoint, there may be a lot of problems with carrying out this chaining for-

4. $\mathbf{PPD}_0$ is the basic type of permissive persuasion dialogue. It is called "permissive," as opposed to rigorous persuasion dialogue, because the rules allow for moves that exhibit flexibility and variation.

ward attempt. There may be missing information concerning the text of discourse in the case of the kind that is needed to make the chaining forward work. Generally, the problem of evaluation is posed by the embedding of an argument (or something that is a move in an argument, or is supposed to be an argument) in a text of discourse in a given case. The first task is to identify the argument (if there is one), i.e., to determine what the premises and conclusion are, what type of argument it is supposed to be (deductive, inductive, or presumptive), and what the argument scheme is, i.e., what particular form of argument it is supposed to be. The second task is to analyze the argument, looking for additional premises that have not been explicitly stated, but may be conjectured as having been used. The third task is the evaluation of the argument. And, as noted above, this task requires placing the local argument given in a global context of dialogue.

In attempting to judge dialectical relevance in a given case, much of the problem is the reconstruction of the argument, or what one takes the argument to be, based on the textual evidence in the case. In this chapter, the task has been seen as a normative one. That is, relevance is determined in view of what the dialogue in the given case is supposed to be about. Such an assessment is made by seeing the given argument within the structure of a dialectical system. Hamblin defined a dialectical system as "a regulated dialogue, or family of dialogues," in which (in the simplest case) there are two participants (1970, 255). Descriptive dialectic studies "the rules and conventions that operate in actual discussions" like parliamentary debates. Formal dialectic "consists in the setting up of simple systems of precise but not necessarily realistic rules," and the plotting out of dialogues that could take place in accord with these rules (256). Typically, in such a dialogue, one party plays the role of questioner, and the other party that of answerer.

The central concept of dialectic is the commitment store (or commitment set), a store of statements that "keep a running tally of a person's commitments" at each move of the running of a dialogue (257). For example, if at a particular point in a dialogue, a speaker asserts statement *A*, then *A* will be inserted into his commitment store. A speaker can also retract commitments, but as Hamblin notes, such retractions may be limited by the obligation to maintain consistency. The problem of determining when retractions are allowed or not at different kinds of moves in different types of dialogue is the central problem tackled in the analysis of commitment in dialogue given in Walton and Krabbe (1995).

Commitment in dialogue, as viewed by Hamblin (1970), van Eemeren and Grootendorst (1992), and Walton and Krabbe (1995), is meant to be a normative and dialectical concept, not a psychological concept. Commitment repre-

sents what a participant in a dialogue or conversational exchange should be held to, according to the normative requirements for the type of dialogue she is supposed to be taking part in, based on what she said, or more generally, on the moves she made in the past sequence of moves in a given dialogue exchange. What a person really believes is a different matter. As Hamblin put it (1970, 257), although the commitment store can be said to represent a "kind of persona of beliefs," it need not correspond with a person's real beliefs. Although commitment, in this sense, could be said to represent a kind of rational acceptance, it would be inappropriate to equate it with belief. Commitment represents the idea of what one has gone on record as advocating, judged from the context of dialogue in a given case, plus the known moves one has made in the past sequence of dialogue exchanges up to the given point where the assessment is made.

Here again, a practical case-study approach of viewing an argument as a connected sequence of interpersonal reasoning used in a context of dialogue is the way to go. One should start with a given text of discourse in the case, and fit the dialectical requirements appropriate for the case onto the particulars of the case. The missing parts can then be reconstructed on a provisional basis. Yes, the resulting analysis is an interpretation, but it is an interpretation that can be supported (or questioned) by textual and dialectical evidence that is reproducible. The method to use is to draw an argument diagram representing the chain of inferences used in the case, as far as one can tell from the textual evidence, and then try to extrapolate that chain forward. But there remains a final complication.

The biggest single problem of argument reconstruction is that of identifying premises or conclusions that have not been explicitly stated in a text of discourse. This is the so-called problem of enthymemes. Etymology is confusing here. Aristotle did not use the term enthymeme (*enthymema*) to mean an argument (or, in particular, a syllogism) with a nonexplicit premise. He defined an enthymeme (*Prior Analytics* 70a12) as "a syllogism from probabilities or signs." What has traditionally been translated as "argument from probability" (*eikos*) is another source of confusing terminology. It is not probability in the post-Enlightenment sense of statistical likelihood, as shown in Chapter 4, but something better rendered as "plausibility" or "seeming to be true." Hopefully, logic will one day be mature enough to correct these ancient and fundamental confusions of terminology. But as Joseph suggests (1916, 361), for the present, we are probably stuck with the meaning of 'enthymeme' as 'argument with a premise (or conclusion) that was not explicitly stated,' or with constantly explaining this terminological point.

Anyway, the main thing about enthymemes is that we can use a calculative

basis for filling in the missing premises (or conclusions), but this calculative basis can never be complete, without bringing in another factor (that is more difficult to calculate). I will explain this cryptic remark by starting with deductive logic. As the textbooks have long taught, missing premises can be identified (at least in some cases) by taking a deductive calculus like propositional logic or syllogistic logic, and plugging in the missing preposition that would normally be needed as a premise to make the argument valid. The traditional example is "All men are mortal, therefore Socrates is mortal." This system can be made even better in AI in an expert system. By using abduction, the system can search back through the knowledge base to identify the facts and rules (if they are in the knowledge base) needed to make the given argument valid. In such a system, we can use a calculative basis for filling in the missing premises (or conclusions) in an argument in a given case.

It is possible to have a similar system using inductive rules based on probabilistic generalizations. Or, it is even possible to have a presumptive system based on plausible reasoning of the kind that is subject to exceptions. But any such system, of any of these three kinds, will be incomplete, in a sense we now turn to explaining. The basic reason is that in many cases there can be many different candidates for the missing premises, any of which would make the argument valid (by the given criterion being used). In identifying arguments used in a given text of discourse in a given case, we need to go beyond this formalistic criterion and ask which candidate proposition the arguer was really using to make his point.

To explain the problem here it is useful to refer to the distinction made by Ennis (1982, 64–66) between need and use. A needed assumption is a proposition an argument needs in order to be as good an argument as it can be (by some standard). But according to Ennis, used assumptions are unstated reasons that we look for "when we are engaged in understanding someone" (64). In evaluating and criticizing arguments, reconstructing enthymemes needs to be done on a basis of use, if we are to avoid committing the straw man fallacy, and other abuses that stem from wrongly or unfairly attributing assumptions to an arguer. But how could we attribute missing premises on a basis of use? The answer is that we need to take the commitments of the arguer into account, as far as these can be determined by the text and context of discourse in a given case.

In any given case of a text of discourse, there will tend to be premises and conclusions needed to chain forward that have not been stated explicitly in the text. Such missing links will have to be filled in, even if it is on a tentative basis, in order to determine relevance. In any realistic case, the determination of relevance will tend to be conditional in nature, depending on assumptions or

hypotheses about how the missing parts of the chain of argumentation are to be filled in.

3. RULES OF DIALOGUE AND FALLACIES

Our goal in this section is to see how the persuasion dialogue, as a structure having only the requirements *(R1)* to *(R4)* imposed on it, can provide a useful normative structure for modeling dialectical relevance. What is meant by dialectical relevance is the kind of relevance that is appropriate when one speaks of arguments or other moves made in argumentation (like the asking of questions) that are perceived as being logically or critically deficient, in some sense, as arguments or moves that should be subject to criticism. But once we bring in this negative idea of irrelevance as a failure of rational argumentation, we are in the realm of the traditional informal fallacies, many of which have standardly been portrayed in the logic textbooks as failures of relevance (Hamblin 1970, chap. 1). But other than by using examples, the textbooks have failed to give their readers any consistent idea of what they mean by irrelevance of the kind supposedly connected to fallacies.

Van Eemeren and Grootendorst have, however, made steps toward clarifying this connection by advocating the theory that fallacies are violations of the rules of a critical discussion (1984; 1987), posing a striking connection to *(R1)*. According to their third rule for a critical discussion, an attack on a point of view (standpoint) must "relate to the standpoint that has really been advanced by the protagonist." Violations of rule three are "imputing a fictitious standpoint to someone" and "distorting someone's standpoint" (1987, 286). Such violations of rule three correspond to the *straw man fallacy*, the fallacy of refuting an opponent's argument by setting up an exaggerated or distorted version of that opponent's standpoint (thesis being advocated), and then demolishing this phony version, thereby claiming to have refuted the opponent's argumentation. A familiar kind of example would be the case of a critic who claims to refute an environmentalist position by painting it as "having the ideal of making the world a parkland," and then criticizing this ideal as hopelessly impractical. Hence we can see from the theory of van Eemeren and Grootendorst how the rules of a critical discussion can have normative bite in evaluating argumentation, and how violations of such rules can be associated with certain traditional informal fallacies.

What about modeling relevance then? Are certain rules for the critical discussion of a type that would be associated with dialectical relevance of argu-

mentation? The fourth rule of the critical discussion (van Eemeren and Grootendorst 1987, 286) stipulates that a party's point of view may be defended only by advancing arguments that are related to that point of view. The actual wording of the rule is: "A standpoint may be defended only by advancing argumentation relating to that standpoint." The question is how to interpret this rule exactly in a way that could be modeled in a formal structure of persuasion dialogue. In particular the question is one of how to interpret the expression 'relating to.' It seems fair to interpret this rule as essentially requiring relevance of argumentation in a critical discussion. And in fact, this interpretation is supported by the two kinds of violations of the rule cited by van Eemeren and Grootendorst (247). One kind of violation occurs where "the argumentation does not refer to the standpoint under discussion," as in the case of "irrelevant argumentation" or *ignoratio elenchi.* The other kind of violation occurs where "the standpoint is defended by rhetorical ruses instead of argumentation," as in *pathos*, or "playing on the emotions or prejudices of the audience."

These descriptions of violations cited by van Eemeren and Grootendorst will turn out to correspond quite well to the examples we now turn to study—cases of the traditional fallacy of irrelevant conclusion, of the kind cited in the traditional accounts of fallacies in the logic textbooks. It seems fair to say then that the fourth rule of the critical discussion is a requirement that is meant to ensure that the argumentation in a critical discussion is in some sense relevant. Relevance means that the argumentation used must "relate" to the standpoint that is supposed to be argued for by a protagonist in such a discussion.

The problem is that irrelevance could take many forms in argumentation, and in fact, many fallacies are classified by logic textbooks like Copi (1982) as fallacies of relevance. Indeed, the catch-phrase "failure of relevance" has become such a widely used, but unexplained, device for declaring arguments of many different kinds fallacious that Hamblin calls it a "rag-bag" category (1970, 31). The basic problem is that relevance has never really been defined by the logic textbooks in any more than various *ad hoc* and unhelpful ways that have never been based on any real theory of relevance. Sperber and Wilson (1986) have defined a kind of relevance, of a sort that refers to the information content of a proposition, but there is no indication whether or how this type of relevance applies to argumentation in a persuasion dialogue. Dascal (1977) and Berg (1991) have cited various kinds of relevance that might prove useful for purposes of evaluation of argumentation, but none of these kinds of relevance has been expressed in a formal structure or general theory. The formal systems of relevance logic that have been developed capture the idea of topical relevance, but not the idea of dialectical relevance (Walton 1982).

4. THE FALLACY OF IRRELEVANT CONCLUSION

Many logic textbooks have traditionally described the "fallacy of irrelevant conclusion" as the device in argumentation of presenting an argument that may be valid (or otherwise correct), but that arrives at a conclusion other than the one that was supposed to be proved. For example, Jevons defined the fallacy of irrelevant conclusion as "arguing to the wrong point, or proving one thing in such a manner that it is something else that is proved" (1878, 178). Fowler described "the fallacy of irrelevancy" as being committed by the person "who in a disputation does not confine himself to proving the contradictory or contrary of his adversary's assertion," but who proves some other proposition instead (1895, 149). Although many other kinds of fallacies of relevance are described by the logic textbooks, this particular one (loosely based on Aristotle's fallacy of *ignoratio elenchi*, or "ignorance of refutation") has a place of central importance. It is the main fallacy of relevance (among many others) in the widely used introductory logic textbook of Copi (1982).

Copi gives the following account of the fallacy of irrelevant conclusion, including a standard example that is very useful as a focus for discussing dialectical relevance.

> ***Ignoratio Elenchi* (irrelevant conclusion).** The fallacy of *ignoratio elenchi* is committed when an argument purporting to establish a particular conclusion is directed to proving a different conclusion. For example, when a particular proposal for housing legislation is under consideration, legislators may rise to speak in favor of the bill and argue only that decent housing for all the people is desirable. Their remarks are then logically irrelevant to the point at issue, for the question concerns the particular measure at hand. Presumably everyone agrees that decent housing for all the people is desirable (even those will pretend to agree who do not really think so). The question is, Will this particular measure provide it and if so, will it provide it better than any practical alternative? The speakers' arguments are fallacious, for they commit the fallacy of *ignoratio elenchi*, or irrelevant conclusion. (1982, 110)

According to Copi's explanation of how this fallacy works as a tactic of deceptive argument, one must contrast logical relevance and psychological relevance. The legislator's remarks about the desirability of decent housing for all the people are "logically irrelevant," but they "may succeed in evoking an attitude of approval for oneself and what one says" (110). This positive attitude may then be transferred to the conclusion of the speaker's argument by the audience

who hears the speech. So the legislator's remarks could be psychologically relevant, in the sense that such a transference takes place by "psychological association," as opposed to "logical implication" (111).

The main problem with the kind of example cited by Copi is to understand the meaning of the concept of logical irrelevance, in virtue of which the legislator in the example can be criticized for having committed the fallacy of irrelevant conclusion. The basic failure, as described by Copi, is that the argument purports to establish a particular conclusion but "is directed to proving a different conclusion" (1982, 110). This account of the failure suggests that the nature of the logical irrelevance committed by the legislator can be explained as a failure to meet requirements *(R3)* and *(R4)* of a persuasion dialogue. The fault was (a) that the legislator's argument failed to have the proposition he was supposed to prove (his thesis in the persuasion dialogue) as the conclusion of his argument, and (b) he directed his argument toward proving a different conclusion. Feature (a) could be described as a failure to meet *(R3)*, and feature (b) is an instance of a proponent's using some means to (apparently) fulfill her goal in a persuasion dialogue, other than the proper kind of means required by *(R3)*. Hence the kind of logical (or dialectical) irrelevance that is the root of the problem of evaluating the fallacy of irrelevant conclusion in Copi's kind of case can be explained as a failure of good (correct, appropriate) use of argumentation by requirements *(R3)* and *(R4)* of the persuasion dialogue.

There are several problems that need to be acknowledged, however. One is that the legislator's argument is, in at least one significant sense, logically relevant to the conclusion he is supposed to prove. When the legislator argues, "Decent housing for all the people is desirable," this proposition is topically relevant to the conclusion he is supposed to prove, namely that the proposal for housing legislation is a good measure that ought to be voted for. The two propositions are *topically relevant* in the sense (Walton 1982) that both share some common subject-matters. For example, both contain the subject-matter of "housing." Topical relevance is one kind of logical relevance.

The problem is not that the legislator's argument is totally irrelevant, in every respect that is logically significant, to the conclusion he is supposed to prove. The problem relating to the fallacy is that his argument fails to be *materially relevant* to this conclusion, meaning that it is part of a chain of argumentation that really is useful for proving this conclusion (as far as one can tell, from the details of the case given).

Another problem is how to prove material relevance or irrelevance of an argument, as used in a given case like this example. The legislator's argument is used *in medias res*, in the middle of an ongoing legislative debate. How do we know that somehow he might not, in his subsequent chain of argumentation,

use the premise "Decent housing for all the people is desirable" as part of a materially relevant argument to support the conclusion that the housing bill he advocates is a good piece of legislation? The problem is that we really do not know this not to be the case, from the information given. It is only an assumption we make, from what we are told about the nature and direction of his argument.

The other problem is that the argument in Copi's example is part of a political debate—a context of dialogue that is difficult to classify exactly. The problem is that such a debate is not necessarily a persuasion dialogue at all. Or if it is partly a persuasion dialogue, it may equally well be partly a negotiation dialogue, or a deliberation type of dialogue, involving the making of prudent decisions for or against a particular course of action (in this case represented by the bill or measure being debated). Much here may depend on the stage the bill has reached—whether it is in a first or second reading, for example—in the legislative process. Despite all these problems, however, the example from Copi is not a bad one. It does give a fairly clear and common, if sketchy, case where the failure of logical relevance is of a kind that fits in with what could be described as a failure to meet requirement *(R3)* of a persuasion dialogue. Suppose we view the legislator's speech in this case from a viewpoint of the normative model of the persuasion dialogue as representing the type of dialogue. Then the logical irrelevance exhibited by his argument can be explained and evaluated as a failure to meet one (or more) of the requirements for successful argumentation in a persuasion dialogue.

What we have to do to judge whether a fallacy of irrelevance has been committed in the legislator case is to look for the missing links in the chain of argumentation that connect up the legislator's speech with the conclusion to be proved. In this case, Copi is operating on the assumption that the intervening links required to chain from the premises to the required conclusion are simply not there. Moreover, we judge from the context that it seems plausible that the speaker is simply engaging in diversionary tactics to cover up this gap and to sway the audience with an emotional appeal that is not relevant. The assessment in this case proceeds by default.

5. THE METHOD OF ARGUMENT EXTRAPOLATION

The example used by Copi (1982) to illustrate the fallacy of irrelevant conclusion was problematic in several important respects, but it is an evocatively familiar type of case that does suggest very plausibly a common tactic of deceptive argumentation that is well worth being aware of. The central problem is how

material relevance, of the kind that fails in this example, can be modeled precisely in the persuasion type of dialogue. The solution is to provide a way of implementing the requirements *(R1)* to *(R4)*, as applied to particular cases where material relevance and irrelevance are at issue. It is especially important to focus on *(R3)*, to determine when, in a given case, this requirement has not been met adequately.

The general problem of evaluation posed by particular cases is that there is a thesis to be argued for, and there is a given line or direction of argument, representing the way the argument has gone so far in that case. The fallacy of irrelevant conclusion is committed when the textual details of the case can be used to document the claim that the direction of the argument is not moving toward the thesis to be argued for. Instead, it may appear that it is moving in a different direction—perhaps one of evoking a positive attitude to gain the psychological relevance needed to persuade an audience. But the logical failure is that the conclusion to be proved (that is supposed to be proved, according to the conventions appropriate for the type of dialogue the participants are supposed to be engaged in) is not the same proposition the real argument in the case is being directed toward.

But how can we identify, analyze, and evaluate arguments used in given cases to see whether they exhibit this particular sort of failure? The failure is not one of deductive validity of the kind traditionally addressed by logic. It is a dialectical failure of an argument to be used in a conventional type of dialogue to fulfill the goals appropriate for this type of dialogue by the means that should be used for this purpose. It is a pragmatic failure of the use of an argument in a context of dialogue.

The method used to determine dialectical relevance of the use of an argument in a given case, *argument extrapolation*, matches the given argumentation up to the conclusion to be proved by a process of forward and backward chaining, as indicated in Figure 7.1.

The given argument, which is a localized sequence of argumentation, as attributed to the proponent in the particular case, is extrapolated forward to get an idea of where it seems to be leading. At the same time, if the conclusion to be proved globally has been made evident in the case (as it was in the legislator case), a backward chaining extrapolation can be made, yielding an idea of what sorts of lines of argumentation would be required to establish this conclusion (from what we know of the type of dialogue involved, and the methods of argumentation needed to prove something in this type of dialogue). Then the questions are: Do these two chains of argumentation meet up at some point in the middle or not? Is the forward chaining of the given argument a direction that shows promise of being useful for completing a line of argument moving

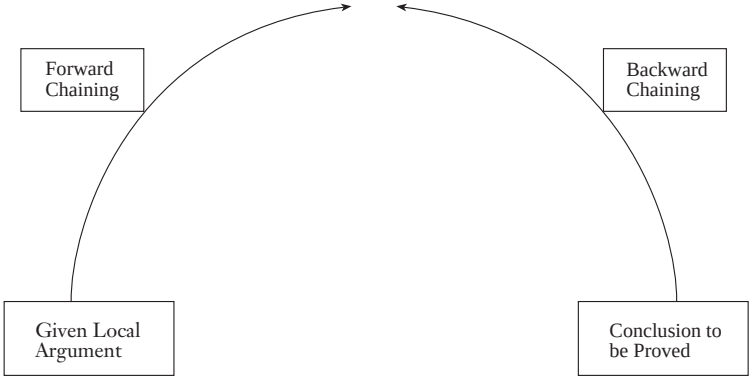


Fig. 7.1 Forward and backward chaining

toward the conclusion to be proved? Or is it moving in a different direction? It is the asking of these two questions, in relation to the information given in a particular case, that should determine whether the argument used in that case is dialectically (logically) relevant or not.

In any given case, once the argument diagram has been constructed for the case, using the method of argument diagramming, one can look over the pathways of argumentation exhibited in the diagram, and see whether the particular argument in question is part of a pathway that goes toward the ultimate conclusion that is supposed to be proved by the argumentation in the case. But if the argument is still at a mid-point, and the case is not closed, it may be hard to tell where the pathway of argumentation is leading. Also, in many cases of the kind used in logic textbooks, not enough context is given to have a really good basis for judging where the line of argument might be leading. In such cases, the argument extrapolation can only be based on assumptions and conjectures. All a critic can do is base an evaluation of an argument used in a particular case on the available evidence of the discourse given in the case.

Copi's legislator case (1982) seems more like a case of deliberation than persuasion dialogue, but the method of argument extrapolation seems to be applicable here, even though the details are very sketchy. Copi puts the test of relevance or irrelevance of the argument as follows: the question is whether the measure (the housing bill proposed) will provide "decent housing for all the people" and "if so, will it provide it better than any practical alternative?" The legislator's argument is judged to be irrelevant by Copi because his speech about "decent housing for all the people" does not show promise of presenting

a line of argument that gives good reasons for thinking this particular bill will do the job, as opposed to any practical alternative. In this case, it may be presumed that the debate is on a particular bill, and that the legislator in the case is in favor of passing the bill. This context sets the thesis that the legislator is supposed to argue for. He is supposed to present arguments that support this particular housing bill, which will offer reasons to those opposed to the bill to change their opinion, and vote for it. His thesis is that this particular housing bill is a good one, meaning that it is a good piece of legislation that everyone in the legislative assembly ought to vote for.

A problem with Copi's example is its sketchiness, however. Not enough details of the legislator's speech, and the particular housing bill that has been proposed, have been given, of a kind that would enable a critic to judge just exactly how and why the legislator's argument fails to be useful in moving forward to the conclusion that the particular bill under consideration is a good solution to the housing problem or not.

What really enables one to support the evaluation that the legislator's argument does not perform this function is Copi's evocation of what we know from personal experience is a favorite tactic of political speakers in legislative debates and other political speeches. According to Copi, "The speaker may have succeeded in evoking such a positive sentiment for housing improvement that the hearers will vote more enthusiastically for the bill proposed than if its passage had really been proved to be in the public interest" (1982, 111). The tactic being used by the speaker in such a case is a familiar one we all recognize. More precisely, the account given of the speaker's use of emotions to rouse the enthusiasm of the audience indicates that the fault can be located as a failure of *(R4)*. The speaker is doing something else to win the approval of the audience for the bill he advocates—something other than using a chain of proper arguments of the kind required in a persuasion dialogue by *(R1)*, *(R2)*, and *(R3)*. In providing a normative framework for evaluating the argument in this particular case as irrelevant, both *(R3)* and *(R4)* play a role.

How this method of argument extrapolation could be applied to a legal case is by the method of dialectical graphs (Gordon 1995, 155–59). Each node of a graph is a set of statements. The arrows (arcs) in the graph represent steps of inference from one set of statements to another. A path of arrows through a set of nodes represents a line of reasoning that has been chained forward, so that the conclusion of one inference also functions as a premise in another inference it is connected to. Thus the graph represents a whole network or argumentation that can be used to model a case in which argumentation is chained forward in a series of steps toward a conclusion. How could such a method be applied to a case like the one presented by Copi to illustrate failure of rele-

vance? The problem is that the sketchiness of the example presented by Copi leaves a lot to be desired if we really want to pin down the criticism that the legislator's argument is irrelevant. There doesn't seem to be enough data given for the method of argument extrapolation to get a good bite on the case. Testing an actual example would be more lengthy, but to get a bit further, this is the step that needs to be taken.

6. TESTING AN ACTUAL EXAMPLE

Actual cases comparable to the kind of case cited by Copi (1982) can be found in political debates in legislative assemblies. An illustrative case is provided by a debate on the Northumberland Strait Crossing Act in the Commons Debates of the Canadian House of Commons (*Hansard*, June 14, 1993, 20729–44). The purpose of this debate was to discuss, and to vote on, proposed amendments to the Northumberland Straits Crossing Act (Bill C-110) at the so-called report stage where the debaters are supposed to avoid irrelevance, and to address their comments to the question before the House (according to the rules of procedure for the Canadian House of Commons). The particular focus of this debate were amendments to the bill concerning the environmental impact of the proposed construction of a bridge, or "fixed link," between Prince Edward Island and the mainland of Canada.

The discussion of the proposed amendments was long and detailed, but about ten pages into the record of it, Jim Fulton, the member for Skeena, started to attack both parties in a derogatory way. He accused the Liberals of wanting to "squeeze and sleaze their way and get a few extra votes" in the region. And he accused the Conservatives of wanting "to use the fixed link as a banner to wave around the Maritimes saying they are going to do something big for all the voters out there" (20738). Then Fulton launched into a personal attack on the leader of the Conservative Party at the time, Prime Minister Kim Campbell (20738–39).

> It is like the person who has just become Canada's Prime Minister the hon. member for Vancouver Centre. She said before her campaign began that she had smoked marijuana. When asked during the leadership campaign she said she had smoked marijuana but she did not break any law by doing it. Every dean of law in the country said that was not true. If one smoked marijuana, one broke the law.
>
> Five hundred and thirty thousand Canadians have a criminal record for smoking marijuana. They are all supposed to keep their criminal

> records. They cannot get bonded jobs. They cannot do anything but it is okay. A person can be the Prime Minister of Canada and break the law. Also, you can say that because you are who you are you did not break the law.
>
> Canadians are getting really sick of this stuff. I am getting really sick of it. There is one law for the grand elevated elite who sit on the government side as prime minister or whatever. The law applies only to the great unwashed. It applies to those Canadians who have to pay the taxes and the piper.

This particular argument doesn't really seem to be relevant to the debate as a whole, which is about a particular bill. Fulton's rousing attack on the "grand elevated elite" stands out from the rest of the debate on the Northumberland Strait Crossing Act, which continues for another six pages or so in *Hansard*. It seems to be an interjection. But his remarks are not completely irrelevant. He is suggesting that there is a pattern of unethical conduct and disdain for the law in the leading parties. He is also suggesting that the failure to conduct an environmental assessment for the impact of the bridge project is consistent with or comparable to this pattern of disdain shown by these two parties.

But is Fulton's attack on Campbell, for having admitted smoking in the past, materially relevant in the debate on the Northumberland Strait Act? This bill is the specific question to be addressed, and in particular, the question is whether the proposed amendments to it should be approved or not. For Fulton's attack on Campbell's marijuana-smoking to be materially relevant, it must advance the line of argument on this question by connecting to it in some material way. But as one scans over the text of the debate, there appears to be no clear and convincing evidence of such an argument extrapolation. Fulton's comments are quite general and wide-ranging in nature, and do not give particular reasons for rejecting or reformulating any of the proposed amendments.

In this case, as opposed to the case from Copi (1982), the issue of the debate is quite specific, and is stated with a fair amount of precision. So one can get a fairly clear idea of what kinds of arguments should be dialectically and materially relevant to the dialogue. Also, looking at the details of Fulton's interjection above, in the context of the actual debate that took place, it is quite possible to give documentable evidence of a failure of material relevance in the case.

Ultimately the test of material relevance in such a case is whether the actual argument given can be extrapolated forward so that it meets up with another line of argument that would give a good reason for accepting or rejecting the proposal being discussed. To apply the test is a contextual job. One has to look at not only the actual text of discourse given. In this case it is the fifteen pages

of the transcript of the debate. But one also has to judge from this text of discourse whether the argument cited (as quoted above) can move forward as a contribution to a persuasion dialogue (or deliberation) on the issue to connect up with the thesis the proponent is supposed to be establishing. To make the test, a critic has to look over the whole transcript of the case, and make an evaluation based on the evidence given in the sum total of the argumentation presented.

From a logical point of view of the requirements of a persuasion dialogue, the evidence in this case indicates that Fulton's argument was not materially relevant, in the sense required by requirement *(R3)*. But one can also look at relevance from the point of view of the rules of order for Commons debates in Canada, and ask why the Speaker of the House failed to intervene and ask Fulton to get back on track.[5] Probably the reason is that Fulton's interjection was not so lengthy that it seriously threatened to interfere with the discussion of the Northumberland Strait Crossing Act, given the time allotted to the reading stage of this bill. At any rate, Fulton's argument was not questioned on grounds of relevance by the Speaker. He was not asked to "get back on track" as sometimes happens in these debates. But from a logical and dialectical viewpoint that would be appropriate for a persuasion dialogue, Fulton's arguments could be judged to be materially irrelevant in exactly the sense cited by the logic textbooks as constituting the fallacy of irrelevant conclusion. In this way, it is comparable to Copi's example, except that, being an actual case, it takes a much more detailed analysis of the text of the debate to apply the test of argument extrapolation. But on the other hand, the test can be applied in a more decisive way that utilizes a larger body of evidence.

The differences between relevance in political argumentation and relevance in legal argumentation are striking however. In political debates, character attacks and other irrelevant arguments are fairly freely allowed. The speaker will only intervene if the length of the irrelevant interlude is excessively time-consuming, or if the character attack uses heavily emotive language or is vitriolic. In a trial, character attacks and other irrelevant arguments will tend to be much more sharply curtailed. The Federal Rules of Evidence presume that a jury can even be confused or prejudiced by some arguments, like personal attack arguments, that carry probative weight. One assumption is that a jury must be somewhat rational, and must be able to decide a case on a basis of which side has the stronger, relevant argument to discharge its burden of proof. But another assumption is that a jury tends to be somewhat gullible. It can be per-

5. These rules are printed in the *Précis of Procedure (House of Commons: Canada)*, 2d ed., Ottawa, Table Research Branch, Clerk of the House of Commons, 1987.

suaded by arguments that have a strong emotional impact, but are not really relevant. In Anglo-American law then, restrictions of relevance are not only much more sharply defined than they are in typical political debate. They are also much more stringently and carefully enforced.

7. HOW THE METHOD SHOULD BE APPLIED

In evaluating a case like the marijuana-smoking argument above, one needs to be careful. The argument is a personal attack on the ethics of the leader of the Conservative Party, and as such can be classified as an *ad hominem* argument, in the usual terminology for traditional fallacies. The second part of Fulton's argument, where he talks about the "grand elevated elite," and how "the law applies only to the great unwashed," could be classified as an *argumentum ad populum*, or "appeal to the people" type of argument. From the traditional point of view then, the standard treatment would be to see Fulton's argument as fallacious, because it uses these two types of argumentation, traditionally classified as fallacies. But recent work (Walton 1989a) has shown that neither of these two types of argumentation is inherently fallacious. Indeed, in political debate, character is (in some cases) a relevant, and even very important, issue. And in a democratic system of government, appeal to the people, or to popularly accepted views, can be quite a reasonable type of argumentation generally even though it (like the *ad hominem*) is subject to abuse. On grounds of these traditional classifications alone then, it would be too much of a logical leap to evaluate the marijuana argument as irrelevant, simply because the *ad hominem* and *ad populum* types of argument are used in it. Instead, the evaluation should be made the other way around. One of the most important criteria for evaluating arguments of these types as fallacious (in some cases) is that the argument, as used in the given case, is not materially relevant.

Also, as noted in the account of the Northumberland Strait debate given above, it was part of the larger chain of argumentation in Fulton's speech to attack both the Conservative and Liberal parties by attacking their ethics, using words like "sleaze," and accusing them of showing disdain for the law. In context then, the marijuana argument is relevant in the sense that it does fit in with the overall direction and strategy of what appears to be Fulton's general line of argument. And questioning the ethics of those who hold opposed views, or appealing to popular opinions, as noted above, can be relevant in a political debate. So what evidence can and should be given then, to support the charge that the marijuana argument is irrelevant? Several steps are needed to provide such evidence. The first step is to ask what type of dialogue the participants are

supposed to be engaged in. It is a House of Commons Debate in Canada, which means that the dialogue is in an institutional framework, and is a particular debate with a purpose in a democratic system of legislation—a debate that is ruled by a Speaker, using codified rules of procedure. There are rules requiring relevance, but they are quite general, and are not very often used by the Speaker. For example, at the third reading of a bill, debate is "irrelevant that is not strictly confined to the elements of the bill" (*Précis of Procedure*, 1987, 78).

Can we look at such a debate from a logical point of view, and judge an argument in it to be materially irrelevant on logical grounds? Some would say that logic has nothing to do with political debate, and that to expect politicians to be logical in debating is hopelessly naive. But surely if a democratic system of legislation is to be defended as part of a system of government that can at least sometimes lead to informed and wise choices, some standards of relevance of a logical sort can and should surely be applied in evaluating or criticizing argumentation in political speeches. So it could be legitimate to look at an argument in a political debate from the viewpoint of a normative model of dialogue, like that of a persuasion dialogue, and then evaluate the argument according to the standards and requirements of that normative model. Such an evaluation could be informative and useful, provided it is clear that it is being conducted from a particular standpoint, according to standards of rational argument appropriate for that standpoint.

The next step is to turn to the details of an argument used in a particular case, and to determine, using the textual evidence, whether the requirements were met or not by the argumentation given in that case. Applying the method of argument extrapolation is done by taking the particular argument at issue, and determining its premises and conclusions (at the local level). In this case, Fulton's argument starts out as an argument from analogy—"It is like the person . . ."—citing a case where the Prime Minister admitted doing something that was illegal. He then uses this argument—a type of personal attack—to lead into a second argument to the effect that the "grand elevated elite" is above the law that applies to the ordinary person. The question is whether this argument can be extrapolated forward in a chain of argumentation that has as its conclusion the proposition that the Northumberland Strait Crossing Act is defective—and in particular that one of the proposed amendments to the act is not good legislation. This test, it needs to be emphasized, is one of dialectical and material relevance.

The kinds of skills needed to apply this test incorporate many of the techniques of argument diagramming already in use in argument reconstruction (Freeman 1991; Snoeck Henkemans 1992; Walton 1996a). As indicated in Section 2 above, the new method of argument diagramming set out in Walton

(1996a, chap. 6) contains the concept of a pathway of reasoning. This concept is the fundamental tool that should be used to evaluate cases of arguments to assess the relevance of a line of argument in a given case. Using these methods, premises and conclusions of an argument are identified as particular propositions. In particular, lengthy sequences of argumentation are reconstructed as chained together subarguments, where the conclusion of one subargument becomes a premise in the next one. For purposes of evaluating argumentation for relevance, this technique needs to be extended, so that a given argument can be extrapolated forward, to test whether it can meet up with a line of argument that would prove or disprove a thesis at issue in a dialogue.

One problem with applying the test to a case of a materially irrelevant argument like the marijuana argument is that much of the evidence is negative evidence. It is the failure to find enough of a basis for such an argument extrapolation, after having gone over all the text of discourse of the dialogue, that is the evidence for evaluating the argument as irrelevant. Much of the focus in informal logic has in fact been on evaluating argumentation on the negative basis of criticizing arguments as fallacious. However, this negative aspect is not essential to the method of argument extrapolation. It can as well be used to show how an argument is materially relevant, as used in a given case, in a context of dialogue. So it could be equally well used to defend an argument from the criticism that it is irrelevant.

8. QUESTIONS RAISED

The analysis above has picked out this one particular type of example of the fallacy of irrelevant conclusion as the case to be studied because *(R3)* does appear to pick out or indicate this type of failure as what the requirement is excluding. Thus the question is raised whether particular fallacies are associated with violations of particular rules. Perhaps, one might hypothesize, *(R3)* is the "rule of relevance," so that all failures of dialectical relevance are excluded by this rule. These observations raise a number of questions.

What seems to be an (at least somewhat) separate fallacy of irrelevance is the so-called *red herring fallacy*. In committing this fallacy an arguer not only argues for the wrong conclusion, but tries to throw the audience off track (off the proper line of argumentation leading to the right conclusion) by going in a different and distracting direction. Some elements of this use of a tactic of distraction are evident in both cases studied above. Is this tactic a separate fallacy of relevance, or is it a kind of extension of the fallacy of irrelevant conclusion? It seems that the red herring fallacy involves a failure to meet *(R3)*. But it

also involves using a different line of argument, a distraction of the kind that would come under the heading of *(R4)*. The failure is one of using other means than proper chain of argumentation meeting requirements *(R1)*, *(R2)*, and *(R3)*.

So do we have one fallacy of irrelevance here, or two? Another problem is that many logic textbooks, like Copi (1982), include many other kinds of arguments thought to be fallacious, like the *ad hominem* and *ad populum*, as being failures of relevance. Hence, it becomes problematic whether a single fallacy is associated with a single rule, so that there is a one-to-one correspondence between the fallacies and rules for persuasion dialogue, or critical discussion, or some other type of dialogue.

What remains, however, is that there is a fairly good match, or at least a kind of mirroring or correspondence between *(R3)* and the fallacy of irrelevant conclusion, as characterized above. The rule does state a general requirement for argumentation in a persuasion dialogue that does both explain and exclude what has centrally gone wrong in a case where the fallacy of irrelevant conclusion has been committed. It tends to support the theory of van Eemeren and Grootendorst (1984; 1987) that fallacies are essentially violations of the rules of a critical discussion, and that the fallacies can be paired with violations of particular rules. For the critical discussion would appear to be a type of persuasion dialogue, and both appear to have more or less the same requirement of relevance.

But now some questions need to be raised on how close the match is between *(R3)* and the fallacy of irrelevant conclusion. In Copi's example, the assumption made was that the premise "Housing for all is desirable" does not appear to be leading along any forward chaining pathway that has the legislator's thesis in the debate as its ultimate conclusion. But perhaps the argument is an enthymeme. The question that needs to be asked is: Could any missing premises or conclusion be inserted into the argument in such a way that the argument could be chained forward to the conclusion to be proved in the case? As a practical inference that would be structurally correct, we could reconstruct the legislator's argument as follows.

(PI) Housing for all is desirable.
The proposed legislation is the best available means for procuring housing for all.
Therefore, the proposed legislation should be adopted.

Reconstructing the line of argument in this way appears to make it able to meet the requirement set in place by *(R3)*, even though the argument is an enthymeme. And in fact, if his argument was criticized as irrelevant, this defense

might be the very line of reply to the criticism that the legislator might take up. But would such a line of defense be convincing, as a justification of the claim that the legislator's argument is really relevant after all? It probably would not be, but why not? The answer to this question may indicate that it is not the violation of just *(R3)* that leads one to think that the legislator's argument should be criticized as a fallacy of irrelevance, but that some other rule violation is involved as well.

Such a criticism can be sketched out as follows. The problem with the legislator's argument is that the first premise of *(PI)*, the statement that housing for all is desirable, was presumably already in the commitment store of everyone involved in the debate, and so bringing in the argument of the form *(PI)* didn't make any advance. If we were to suppose instead that everyone agreed with the second premise that legislation is the best means, but if many doubted the first premise that housing was an appropriate goal, then the legislator's argument would not have been irrelevant at all. But since nothing was said by the legislator (as far as we are told) to support the additional premise abut legislation being the best means, there was no advance of the argument on that side. Since the legislator failed to back up an argument of the form *(PI)* in the appropriate way, by supporting the premises, his argument made no advance toward the conclusion to be proved, namely that this legislation should be adopted.

The failure indicated by the above criticism relates to the failure of advance of the line of argument based on a premise that everyone in the audience accepts anyway. This premise would therefore appear to be useless to persuade the opponents of the housing bill to accept the conclusion that they should vote for it. It's not just that this premise fails to be on a pathway that leads to the conclusion to be proved, but that the pathway of this kind that it is on is not really being used to prove something to the audience that they doubt. The failure with the argument *(PI)* is that it is no advance. It is not being used to overcome the doubt of the other legislators by taking some premise that they already accept, or can be gotten to accept, and then using that premise to get them to accept something else (the conclusion that this legislation should be adopted). This criticism is based on a failure of the *probative function* of an argument. This function is only fulfilled where the premises are used by the proponent to shift a weight of acceptance forward so that the conclusion, which was previously not acceptable to the respondent, now becomes acceptable. The probative function represents the use of an argument to overcome a respondent's initial doubt, so that the respondent will become committed, in virtue of how the argument was used, to its conclusion.

So it may be that *(R3)* alone, or in conjunction with the other three requirements of the successfulness of an argument in a persuasion dialogue given in

Section 1, cannot handle all aspects of why the argument in Copi's example is thought to be a fallacy of relevance. In addition, the probative function also needs to be taken into account. An argument is dialectically irrelevant not just because it does not extrapolate forward to reach the conclusion it is supposed to prove, by some pathway of reasoning that could be used. The failure is more than this. It is that a pathway does not lead to this conclusion that represents a line of argumentation that could be used to fulfill the probative function by removing the respondent's doubt about this conclusion. In short, there are some questions raised by this way of viewing the criticism of the legislator's speech in Copi's example that suggest that failure to meet *(R3)* may not be the whole story of how to explain and evaluate cases of the fallacy of irrelevant conclusion. The probative function may have a role to play in this story as well.

Some other interesting questions are also raised about the modeling of relevance in formal systems of dialogue. A simple system of persuasion dialogue, using only the four requirements *(R1)* to *(R4)*, could easily be implemented as a framework for argumentation between a user and a computer program. It could be implemented in a familiar kind of system, like an expert system containing a set of facts and rules. The user tries to get the system to accept her thesis by putting forward arguments to prove that thesis, based on propositions in the commitment set (the set of facts and rules) of the system. Such an artificial intelligence modeling of argumentation in persuasion dialogue would be an interesting way to study fallacies of relevance. Other questions relate to the application of a formal system of persuasion dialogue to realistic cases, like the Northumberland Strait Act case above, to test out the argumentation used in the case to see whether it can be judged to be materially relevant or not. These questions involve many of the same kinds of problems widely discussed in the use of argument diagramming for argument reconstruction.

9. APPLICATION TO LEGAL CASES

The second example of the fallacy of *ignoratio elenchi* given by Copi (1982, 110) is in fact a legal case, or a sketch of one.

> In a law court, in attempting to prove that the accused is guilty of murder, the prosecution may argue at length that murder is a horrible crime, and may even succeed in proving that conclusion. But when one infers from such remarks about the horribleness of murder that the defendant is guilty of it, one is committing the fallacy of *ignoratio elenchi*.

This case appears to be very similar to the legislator case, calling for pretty much the same kind of analysis. The context in both cases suggests that the speaker is trying to evoke an emotionally positive or negative aura around the case. He is then using that aura to sway the audience without filling in the required steps to lead to his conclusion by a chain of arguments that can be used to prove that conclusion. There is a long distance from the premise 'Murder is a horrible crime' to the conclusion 'The defendant in this case is guilty of murder.' But the same cautionary remarks are needed in this legal case as were made above in the legislator case. There could conceivably be some connection, of the kind that would indicate relevance, but in the absence of the showing of any such connection, we judge the case as one where diversionary tactics are being used. It seems then that *ignoratio elenchi* as a fallacy works in a very similar way in a political speech to the way it works in a legal case in a trial. But in fact, the two kinds of cases are different in many ways. In the trial, the rules governing relevance are much stricter, much more precisely formulated, and much more carefully enforced. The way of determining relevance is special also, because it involves not only the rules of evidence, but also, in a special way, the discretion of the court. The special nature of legal determination of relevance can be brought out by contrasting the Northumberland Strait case with the murder trial case, or with any case of the kind where relevance is an important question in a trial.

In the Northumberland Strait Case, the argumentation is finished, as far as that debate was concerned, and the transcript of the whole case is printed. So the problem of determining relevance is made much easier than it would be in a typical kind of legal case where relevance is a problem. In such a case, at some point during a trial, the attorney for the one side introduces an argument or raises a question, and the attorney for the opposing side objects that it is irrelevant. The judge then has to make a decision. Is it relevant or not? The usual problem is that the trial may be just past the opening stage, and the main arguments which will be put forward by both sides have not yet been presented. In the absence of such contextual information within which to determine relevance, how can the judge make any kind of rational or logical decision based on the context of the persuasion dialogue? Which way the arguments will go is not yet determined, because the evidence in the case is not yet in. The answer is that the judge will have to make a guess, on the basis of what seems to be the way the argumentation in the case will go.

We are all familiar with how the argumentation in such a case typically goes. The attorney may plead with the judge, saying that it will become evident later on how the argument in question is relevant. He may plead that if the judge will give him some latitude, it will become clear later on how the argument in

question is an important part of the case he will make. Alternatively, the judge may ask the attorney to show, if he can, why this particular argument or question will turn out to be relevant. Wigmore described this typical kind of situation under the heading of present and future relevancy.

> A fact, when offered as evidence, may not be relevant, either because it is material to a subordinate proposition whose bearing is not yet apparent, or because it is relevant only in connection with some other fact not yet offered. Thus it is not now but may later in the trial become relevant. (1940, 432)

What is required to establish relevance in such a case is the presentation of a promissory note, a kind of quick and hypothetical sketch of the direction the case will take once evidence has been introduced. As Wigmore put it, relevance "must be made to appear by a preliminary and hypothetical statement of the additional facts or propositions that would make it relevant, with an engagement to make them good at the proper time" (432–33). What is required, according to the new plausibilistic theory of evidence, is a kind of sketch or outline of the chaining process.

More precisely, what is required in such a case is a dialogue between the judge and the attorney, in which the attorney is asked to present a quick sketch of some key propositions and links that will be important in his future argumentation in the case. This sketch has to be plausible enough to satisfy the judge to make a ruling in favor of conceding relevance, at least at this point. But the whole exchange is hypothetical in an important sense. For only later, when all the evidence is in and the main argumentation stage of the trial is closed, will it be definitely proven whether the argument in question was materially relevant or not. Wigmore (433) also cites some complications in the dialogue. The attorney may not want to disclose the full direction his argument will take, at this point, for strategic purposes. So it is a matter of the discretion of the court to determine whether it is better to insist on this disclosure right at the moment, or take the attorney at his word that he will connect everything together later, as his argumentation proceeds.

In the end it is the judge who has to make decisions on relevance in a given case. And it is possible to find difficult cases where relevance is a main problem affecting the trial. Among the most problematic cases are those that concern character evidence. A remarkable example is the Simpson trial. It is by no means a typical case, but it certainly does illustrate some problems with applying the notion of relevance in a trial.

One issue of the relevance of character evidence in the Simpson (criminal)

trial concerned Simpson's documented prior acts of spouse abuse. There was documented evidence of Simpson's having stalked and beaten Nicole Brown Simpson. Even before the opening statements, both sides were arguing about whether the documentation of these prior acts was admissible or not (Park 1996, 748). The defense cited the rule against character evidence as the reason why it should not be admissible. The prosecution argued that domestic violence evidence is in general relevant, regardless of whether it is treated as character evidence or not. But the prosecution also argued that this documentation was relevant because it showed that Simpson had a motive of controlling and dominating Nicole Brown Simpson (749). As indicated by Wigmore's analysis of argument from motive in Chapter 4, Section 3, if a person can be shown to have a motive to commit an action, that is plausible evidence that he did, or may have committed that action. In other words, from a viewpoint of evidence law, the same evidence could be relevant if offered to show a defendant's motive, but irrelevant if meant to show his bad character. Judge Ito admitted some spousal abuse evidence, including police photographs of the beating that led to Simpson's conviction for spouse abuse, in line with a prior California appellate court decision that ruled evidence of prior assaults on the same victim as relevant in a murder trial (752). The justification of this kind of ruling is that such evidence is meant to show motive, not character. Such rulings on relevance show the importance of the dividing line between motive and character in matters of legal evidence. On the other hand, it is easy to be a little skeptical. Even if ruled relevant on grounds of motive, once such evidence has been presented to a jury, they would certainly draw significant inferences about the character of the defendant. Prosecutors would be well aware of these implications, and would try to exploit them to influence juries.

The other issue of relevance of character evidence in the Simpson trial concerned the alleged racism of Detective Mark Fuhrman, the first police officer to find the bloody glove at the crime scene. A left glove was found at the crime scene and a similar right glove was found behind Simpson's house (Mueller 1996, 731). Fuhrman had made racist statements in an interview with a physician in 1980 concerning his disability discharge. The defense argued that this evidence was relevant because Fuhrman was a witness, and they should be allowed to attack his credibility. Here a distinction between character and credibility was being appealed to by the defense. Their argument was that by attacking Fuhrman's credibility, they were not necessarily attacking his character. They also argued that Fuhrman's statements showed that he had a bias against black persons. This argument rests on a distinction between character and bias. The assumption is that a person can be biased, or have a bias in favor of or against something, without necessarily being a bad person, in the sense of

having a bad ethical character (*ethos*). The distinction appealed to here would seem to both be a legitimate one, and also a highly significant one from a point of view of legal evidence.

Judge Ito ruled that the documentation of the racist remarks Fuhrman made to the physician were not relevant. But he also ruled that some tapes and transcriptions of tapes in which Fuhrman used the N-word 41 times, and showed a strong bias against blacks, were relevant because they showed racial bias (Mueller 1996, 733). The statements made by Fuhrman in the tapes seemed to condone police violence, trial perjury, and cover-up of police misconduct (Park 1996, 758). These statements made Fuhrman appear to be racially biased and to have ethical character faults inappropriate for a police officer. Was all this evidence really relevant or not in the trial? A good argument can be made that it was properly judged to be relevant. Fuhrman was an important witness, and the evidence was about racial bias. But what is also important to see is that this evidence, once conveyed to the jury, would have all kinds of significant negative implications about how they would perceive Fuhrman's ethical character.[6] They might even find the argument quite plausible that Fuhrman could be quite capable of "planting" the second bloody glove at Simpson's house, where it was found. Of course, *ad hominem* attacks on Fuhrman's character are not generally supposed to be relevant, according to the rules of evidence. But raising questions about whether a witness might be biased is relevant.

In this trial, Judge Ito was struggling to make decisions on whether to rule character evidence relevant or not, and arguments were being put forward by both sides to try to influence his decisions, even before the opening arguments of the trial. The rules of evidence play an important role in such decisions. The analysis of the argumentation in the Simpson case by Park (1996) brought out the many factors that were at play in these rulings. Character evidence is clearly one area where ruling on the notion of relevance in legal cases has become a complex legal problem. In Chapter 8 it will be argued that the only way to solve this problem is by enriching the notion of relevance within a framework of multi-agent argumentation. Before getting to that point, one more complication needs to be dealt with, the problem of disentangling explanations and arguments.

6. Callen argues that restrictions on character evidence can be justified on the grounds that jurors, using Gricean principles of implicature, do draw significant negative implications from character evidence. According to Callen, one inferential error of overestimating the probative value of such evidence is that of taking the admission of the evidence as "an implicit assurance of relevance" (1996, 783).

10. ARGUMENTS AND EXPLANATIONS

It is appropriate to close this chapter by stressing that the theory of logical (dialectical) relevance set out in the chapter is a simple model that overlooks many subtleties and complicating factors found in real cases. And yet, supposedly, legal argumentation of the kind found in a trial is based on some underlying notions of rational argumentation and logical relevance. The reality of an actual case is, as we have noted, much more complicated. As Wagenaar, van Koppen, and Crombag showed (1993), legal argumentation in a trial is typically based on interviews with witnesses who tell a story, or give a narrative account. The examiner will then probe into that account and test it out by asking questions. Many kinds of speech acts other than arguments are involved. The asking of questions is important. The answering of questions by asserting what are presumed to be facts is also important. The offering of explanations can also be vitally important to understanding evidence. The chaining of arguments in a case is the central mechanism of the argumentation in a case that determines relevance. But around this central mechanism, there are many other significant factors.

In peirastic dialogue, when an expert witness is being examined in a trial, for example, explanations are mixed in with arguments. Such explanations are asked for in the form of questions. It should be clear then that the problem of relevance is not just restricted to arguments. Questions, explanations, and other moves made in a dialogue that are not arguments, all need to be judged as relevant or irrelevant in some cases. To fully solve the problem of relevance, all these other kinds of moves, or so-called speech acts in dialogue, need to be studied. This expansion of the problem of relevance brings with it a number of problems. But the foremost among these problems is that of distinguishing between explanations and arguments. The problem of defining 'explanation' has to be beyond the scope of this book. It is too big a task. For one thing, there is a huge literature on it. Our primary focus has to be on arguments. But what is needed here is some way of determining, in a given case, whether something is an argument or an explanation. It is very easy to confuse the two things, in many cases. Indeed, in some cases, there is no way of knowing whether a given text of discourse contains an argument or an explanation, or both. Still, some comments on the distinction are useful here, for purposes of judging relevance.

Reasoning is used in both arguments and explanations. Moreover, the indicator-words, 'thus,' 'therefore,' 'consequently' and so forth, are similar, in many cases, in arguments and explanations. So how do you tell, in a given case,

whether the reasoning used is an argument or an explanation? The answer is to be sought in analyzing what sort of why-question the argument or explanation is supposed to be a reply to, in the context of dialogue in which the reasoning was used, in the given case, insofar as that is evident from the text of discourse. In short, the distinction is a dialectical one.

According to Hamblin (1970, 270–73), a why-question in a dialectical exchange is essentially a request by the speaker for the hearer to furnish an argument where the premises are commitments of the speaker (or propositions the speaker could eventually be led to assent to) and the conclusion is the proposition queried. In this sense, if I ask you 'Why *A*?,' what I want is an argument with a set of premises $B_0, B_1, \ldots, B_i$, that I am committed to, and that permit the inference to *A* by the rules of inference appropriate for the dialogue. But this is only one type of why-question—the asking for an argument type of why-question. Hamblin also conceded (274) that there is another sense of 'why' that makes it a request for an explanation. This sense of 'why' is harder to define dialectically. But roughly what is requested by the speaker is some story or account that will make the queried proposition more comprehensible to him by relating it to something he is already familiar with or understands (or thinks he understands). In other words, the purpose of an explanation is essentially different from that of an argument. But it is notoriously true that in some cases,[7] the same text of discourse, although it seems comprehensible, could equally well be interpreted as being an argument or an explanation. Many would throw up their hands at this point and say, "There you go. You really can't tell the difference between an argument and an explanation. So there really is no difference, and it's all subjective, etc." But this leap to postmodernism is a hasty conclusion.

It is quite reasonable to expect that there will be cases where the text of discourse is incomplete. In such a case there is insufficient textual and contextual evidence to tell whether the reasoning was being used (as far as we can tell) as an argument or an explanation. Moreover, some types of dialogue—like the pedagogical type of dialogue typically encountered in a college textbook designed for use in the classroom—tend to thoroughly blend arguments and explanations in a way that makes it very hard, and perhaps even arbitrary, to tell them apart. But it hardly follows from this case that there is no difference between an argument and an explanation. Nor does it follow that it is not possible or important to distinguish between the two in some cases where the goal is to evaluate cases of argumentation in given texts of discourse (as in a practically oriented logic class, where the purpose is to evaluate cases of arguments in discourse).

7. See the examples cited by Thomas (1981, 13ff).

There are some cases that are arguments but not explanations, and some cases that are explanations but not arguments. The best test is to look for indicator-words in the text of discourse, and judge how the reasoning is being used dialectically to reply to a why-question in the context of dialogue. The central question featured in the test is whether the proposition being queried (the proposition *A* in the why-question) fits as an answer to one, and not the other, of the following pair of questions.

1. Is the hearer adopting a stance of doubting or disagreeing with *A*, and thereby requesting the speaker to give him a reason for accepting *A* as a commitment, based on premises the hearer already accepts (or can be brought to accept in the subsequent dialogue)?
2. Is *A* a proposition both parties already accept, or at any rate are not doubting or disputing?

If the reasoning in question is being used as an explanation, then the presumption is that whether *A* is true is not being disputed by either party. Instead, the speaker is merely requesting some kind of story or account that gives him understanding of how *A* connects up with something he is already familiar with. It could be a scientific theory, or a causal sequence of events, or an analogy to something else, or any one of a number of different kinds of accounts that could make *A* comprehensible to the speaker.

At any rate, the details of the criteria that should be used to test a particular case to judge whether it is best seen as an argument or an explanation are less important than the recognition that such a judgement is best seen as dialectical in nature. It is not a matter of the reasoning itself, or the links of inference that join up the steps in the reasoning. It is a matter of how that reasoning was used (as far as we can tell) in a context of dialogue. The first step is to identify the chain of reasoning in a given case, by mapping the propositions in the text of discourse in the case onto a directed graph, or argument diagram of the case. The next step is to determine how the reasoning is being used, as an argument or an explanation. If it is an argument, then it needs to be judged how it is being used to make a point, and what the nonexplicit premises and conclusions are. Only then should the process of evaluating the argument go forward. It is critical, in analyzing and evaluating particular cases, to leave room for the possibility that insufficient information is given in the case to permit decisions to be made, one way or the other, at all the various points of the identification and analysis process.

8

MULTI-AGENT ARGUMENTATION AND CREDIBILITY

In trial, the jury (or trier) is known to evaluate the testimony of a witness, or indeed any speaker's argument throughout the trial, at least partly by the *ethos,* or perceived character of the speaker. If the speaker is known to be a good person, her argument or claim will be enhanced in its acceptability. If the speaker is seen as a bad or dishonest person, her argument or claim will be judged to be less plausible. These kinds of assessments of an argument, which draw an inference from the credibility of the speaker to the acceptability of her argument, are quite common in everyday argumentation as well, outside the legal framework. But in logic, despite the useful literature on fallacies, an objective general framework for analyzing and evaluating them has been lacking.

In this chapter it is shown how a new component has to be added to formal dialectic to model the kind of argumentation where the credibility of a participant in the dialogue as a collaborative arguer is a factor in the evaluation of the plausibility of her argument. In the previous systems of formal dialectic constructed by Hamblin (1970; 1971), Rescher (1977), Barth and Krabbe (1982), Mackenzie (1981; 1990), Walton and Krabbe (1995), Lodder (1999), and others, no resources are available within the formal system of dialectic that are fully adequate to deal with the evaluation of this kind of argumentation. To fill this gap, the notion of a credibility function is added to the system, of such a kind that an assessment of an arguer's personal credibility as a sincere collaborator in a dialogue can have some impact on how her argument is evaluated as more or less plausible.

One of the most obvious applications of this new structure is to certain forms of argumentation that have long been associated with informal fallacies in logic. In particular, the *ad hominem* and *ad verecundiam* types of arguments represent traditional fallacies where the credibility of the arguer plays an important role in the evaluation of her argument. Argument from witness testimony is another type of argument where the credibility of the source is extremely important. It will be argued in this chapter that not all kinds of arguments need to take the credibility function into account, and that it is only in certain kinds of cases (like arguments of the three types cited above) where the credibility function needs to be used. However, once the credibility function is taken into account, as shown in this chapter, the resulting way of handling the argumentation scheme will significantly affect how a particular *ad hominem* or *ad verecundiam* argument is properly judged to be relevant or not in a given case. This analysis can be applied to other kinds of argumentation frequently used in law as well. The way to carry out the addition of the credibility function to the current systems of formal dialectic, it will be shown, is to extend the notion of a participant in a dialogue. The extension is to think of a participant as what is now called an 'agent' in multi-agent systems in computer science. Multi-agent systems are software engineering models in which two or more autonomous software systems called agents can interact verbally with each other, in a dialogue, in order to efficiently carry out a task requiring their intelligent collaboration (Wooldridge and Jennings 1995). Such dialogues can be negotiations (Sandholm and Lesser 1995), but can take other forms as well.

1. FORMAL DIALOGUE SYSTEMS IN LOGIC

In formal logic, the idea of studying patterns of argumentation in a dialogue format, where two parties are reasoning with each other, is not widely accepted.

Such a formal structure for dialectical reasoning was developed by the Erlangen School in Germany, but it never really caught on, and that branch of logic has never been widely influential, despite its further development as a set of formal dialogue systems in Barth and Krabbe (1982). However, dialogue logic did find an area of application when Hamblin (1970; 1971; 1987) advocated the use of formal dialectical structures as models for evaluating the kind of argumentation used in connection with the traditional subject of fallacies. The study of fallacies is a branch of logic that goes back to Aristotle, and that has, since then, had a place of some (though often marginal) importance in logic textbooks.

Hamblin (1970, 130) starts with a set P of participants (persons) and a set L of locutions. What he calls a *locution-act* is a member of the set of participant-locution pairs. A *dialogue of length n* is then defined as a member of the set $(P \times L)^n$ of sequences of n locution-acts. For Hamblin (1971, 130), a dialogue is a member of the set

$$D = \bigcup_n (P \times L)^n$$

of dialogues of any length. A locution in a dialogue could be a question, for example, or a statement, which would be attributed to a participant, and then a number is attached to the participant-locution pair, representing its place in the longer sequence of participant-locution pairs that make up the dialogue. For example (131), the following is a dialogue of length 3.

$$\langle 0, P_0, L_4 \rangle, \langle 1, P_1, L_3 \rangle, \langle 2, P_0, L_2 \rangle$$

We can see from this example how each move in a dialogue contains a single locution. The first move above, move zero, contains the locution L_4 put forward by the participant P_0.

Hamblin doesn't tell us much about the central purpose or goal of each of the various systems of dialogue constructed in Hamblin (1971). All he tells us is that they are "information-oriented," meaning that the purpose is to exchange information among the participants (1971, 133). The systems of dialogue constructed in Hamblin seem to have a different purpose. But once again, it is not too clear exactly how the goal is to be defined. Hamblin describes them as systems which permit a participant "to develop an argument by securing assent to individual steps" (148). Such systems, he writes are not information-oriented, but do involve a kind of "rationality" in the sense that once a participant has committed herself to a statement, she should not retract commitment to another statement that is an immediate logical consequence of the first statement. In the terminology of Krabbe and Walton (1995), such dialogue systems would be classified under the heading of persuasion dialogue. Hamblin's pro-

posal of using formal dialogue systems to analyze fallacies was a novel one at the time. But since then, the idea of using formal dialectical structures to study fallacies has revived an interest in formal dialogue logic among argumentation theorists and practitioners of applied logic. Now the dialectical approach has even found advocates among those studying artificial intelligence and legal reasoning (Prakken and Sartor 1997; Verheij 1996; Lodder 1999). But dialogue logic is still by no means fashionable as an active branch of formal logic.

Curiously enough, however, quite recently dialogue logic has come to be accepted as a new and important subject for study in computer science, especially in artificial intelligence. In AI, the new field of computational dialectics has taken up the study of aspects like, for example, how a user and a software computer program would "reason together" in an interactive dialogue format, in order to answer a query, or solve some problem of the user. Dialogue logic has a natural application to fields like expert systems, where the user and the system can naturally be seen as engaging in a goal-directed dialogue where inferences are drawn and logical reasoning is used. Dialogue models are being used in AI research to model reasoning with precedents (Prakken and Sartor 1998), and to assess conflicting arguments in legal reasoning (Prakken and Sartor 1996). Computer models of legal argumentation have many potential applications (Hage, Leenes, and Lodder 1994; Gordon 1995; Verheij 1996; Prakken 1997; Lodder 1999), and are very interesting in their own right, from a logical point of view.

Hamblin (1971), and following him Mackenzie (1981; 1990) and Walton and Krabbe (1995), defines a dialogue not only as a set of moves, made by two participants, typically called the proponent and the respondent, but as a set of moves that are to be made according to certain rules. These rules, according to the account given in Walton and Krabbe (1995), are of four kinds. Locution rules define the types of moves allowed, like the asking of questions or the making of assertions (1995, 149). Structural rules define what kind of move a participant may make at any particular point in the sequence of a dialogue, depending in many cases on what the prior move of the other party was (150). Commitment rules determine which propositions are inserted into or deleted from a participant's commitment store at each type of move (149). Win and loss rules define the goal of the dialogue, so that it is made clear what constitutes an achieving of the goal (winning), or a failure to achieve the goal (losing). Calling the latter rules win and loss rules implies a competitive aspect, but different types of dialogue can be more or less competitive to a varying degree. The kind of dialogue most extensively treated in Walton and Krabbe (1995) is the persuasion dialogue. Each participant has the aim of winning by proving her designated thesis from the commitments of the other participant. In this re-

spect, the dialogue is competitive, and partisan (advocacy) argumentation is used by both sides. However, the goal of the dialogue as a whole is to resolve a conflict of opinions, or at least to throw light on the issue discussed by considering the strongest arguments on both sides of the issue, and seeing how they fare against each other.

In this account of the formal structure of a dialogue, the concept of the commitment store of a participant is central. Each participant has a repository, a set of propositions indexed to that participant. As the dialogue proceeds, propositions (statements) are inserted into that set, or can be deleted from that set, depending on what happens at a particular move. For example, if the proponent asserts a particular proposition at a given move, then just after that move, that proposition she asserted will be inserted into her commitment store. The commitments of a participant operate approximately like a *persona* of her beliefs. But it is important to realize, as Hamblin (1970, 257) emphasized, that commitments are not exactly the same as beliefs. A commitment is something you have gone on record as accepting, whether you actually believe it or not. As van Eemeren and Grootendorst (1984; 1992) have also made clear, there is an important distinction between belief and acceptance. Belief is psychological, whereas acceptance is more like a voluntary action of communicating to another party that you stand behind a proposition, and are communicating that you are willing to defend it, if challenged to give your supporting reasons for undertaking to accept it. Just as commitment is taken on by voluntary acceptance, it can also be retracted or given up by an act of indicating that you no longer accept something.

The problem confronting us now is that there seems to be no way of extending this standard dialectical system to accommodate a very important and common kind of argumentation in legal discourse. This type of argumentation could be called source-based. A source-based argument is one in which the evaluation of the argument depends not only on the structure of the inference used in the argument, but also on some assessment of the sources of the premises. By the "source" of a premise is meant the evidence on which it was supposedly based. For example, a source could be a set of medical files, or some person or organization that put the proposition forward, or it could be a chain of prior arguments. Two of the most common forms of source-based arguments are the appeal to expert opinion and the personal attack or *ad hominem* argument. These two types of argumentation are singled out for special attention in this investigation, because they have been acknowledged as especially important in the history of logic, as traditional informal fallacies, and because they are both extremely common and important in argumentation, and most notably in legal argumentation. But the problem of how source-based arguments should be

evaluated in applied logic should be of general interest to researchers in the area of logic and computing.

The fact is that in many cases where conclusions are drawn from a database in everyday argumentation, the decision on what conclusion to accept is based to a considerable extent on the sources of the information, The statement made by the source is used as a premise of the argument. Such arguments, like the argument from witness testimony, are based on some weighting of the relative credibility of the source. The evaluation of source-based reasoning has never been taken very seriously as a problem for logic in the past however, probably because there just seemed to be no formal structure that could be applicable to this kind of problem. Now with the advent of new methods used in computing, that picture is changing. As noted in Chapter 2, Verheij (2000, 4) has shown how argument from witness testimony is a defeasible form of argument that needs to be evaluated in a dialogue format, representing arguments for and against the claim. There are formal methods being developed that are available and that are at least applicable to some parts of the problem. In this investigation, the parts are put together in a sequence. The four methods brought to bear in this investigation are labeled deductive systems, systems of practical (goal-directed) reasoning, multi-agent systems, and formal dialectical systems. The result shown by the investigation is that these structures, currently in use in various areas of computing, are applicable at different stages of the evaluation process needed to deal with realistic cases of source-based argumentation. The method proposed is not one seamless formal structure, but a series of structures, some of which have been formalized. Others of the structures have been partly formalized, or can be formalized in different ways. But the whole method at least shows promise of being precise enough to lead to formal models through the refinement of concepts currently in use in expert systems and artificial intelligence generally.

2. THE *AD HOMINEM* AND *AD VERECUNDIAM* FALLACIES

Now we come to the point where it needs to be asked whether the dialectical structures outlined above are adequate to usefully model certain types of argument that are very important in the study of fallacies. In particular, the *ad hominem*, or personal attack argument, and the *ad verecundiam*, or appeal to expert opinion argument (or more broadly, appeal to authority), are types of argument associated with traditional fallacies (Hamblin 1970; Walton 1995). The appeal to expert opinion and the personal attack (*ad hominem)* types of argument are particularly important and common in legal argumentation, espe-

cially in witness testimony in a trial, as noted in Chapters 1 and 2. What is common to both these types of argument is that the evaluation of the strength of the argument depends crucially on an evaluation of the credibility of a source who backs up the premises of the argument.

One is the personal attack or *ad hominem* type of argument, where the one party in a dialogue mounts a personal attack against the other party, and then uses this personal attack as a basis on which to criticize or refute that other party's argumentation. This form of argumentation is very common in legal cases where the testimony of a witness is attacked on grounds of "impeachment" of the witness, i.e., attacking the witness as an unreliable source (Saunders 1993, 345–49). Traditionally the *ad hominem* argument was classified in logic as a fallacy (Hamblin 1970), but recent research was showing more and more that *ad hominem* arguments can often be reasonable, and in many instances are not fallacious at all (Walton 1995). The other type of argument is the appeal to expert opinion (or more broadly, appeal to authority). In this type of argument (see Chapter 2), one party in a dialogue supports her conclusion by citing the opinion of an expert in a domain of knowledge, where the expert opinion is put forward as supporting the arguer's conclusion. This form of argument is extremely common in the use of expert testimony in legal trials. Its use in law has recently been a subject of controversy, as "junk science" in expert testimony has been criticized (Huber 1991). This argument too was traditionally classified as a fallacy, as noted above. It was, and still is, called the *ad verecundiam* fallacy, which can be (roughly, although intelligibly, to someone not familiar with this expression) translated as appeal to respect (for authority).[1] Both the appeal to expert opinion type of argument (Walton 1997) and the *ad hominem* argument (Walton 1998a), however, can be quite reasonable in many cases. Both are in fact so widely used in common legal reasoning of many kinds that they are well worth studying from that viewpoint alone.

What is very important in the job of attempting to provide criteria for the evaluation of both these types of arguments is the recognition that both depend essentially on the credibility of one of the participants in the argument. In the case of the *ad hominem*, the argument is essentially a personal attack on the character of the one participant, often concentrating on her character for veracity, sincerity, or trustworthiness as a collaborative participant in the dialogue. Then the character attack is used to impeach the credibility of the arguer. And then this reduction in the credibility of the arguer is used as a basis for inferring that the plausibility value of the participant's argument should be reduced. In other words, the *ad hominem* argument is a way of attacking somebody's argu-

1. See Hamblin (1970) and Walton (1995).

ment by attacking that person's character, and then transferring the character evaluation to the evaluation of that person's argument. Clearly, what is central to this type of argument are three assumptions. One is that a participant in an argument has what is called credibility. Another is that this credibility depends on the participant's personal character (or what that is taken to be by others). Another is that the participant's credibility is a factor in evaluating the strength of his argument.

Can these types of argumentation be modeled adequately by the existing structures of formal dialectic, or do these structures need to be extended in a particular way, in order to do the job? Some recent historical research (Nuchelmans 1993; Walton 1998a) has shown that since Locke[2] the *argumentum ad hominem* has been thought of as species of argument from the commitment of the other party in a dialogue. But really it is more than that. It is a species of argumentation in which one party in a dialogue attacks the person of the other party—for example, attacks the character or reputation for veracity of that person—and then uses that attack to argue that the person's argument should not be accepted. In this account, the notion of the party being attacked, as a person, is fundamental. If this latter account is the right concept of the *ad hominem* argument needed for logic, then it would appear that we require the concept of an arguer (participant, person) as a distinct entity in the dialectical structure needed to analyze and evaluate *ad hominem* arguments. Recent research on the *ad verecundiam* type of argument (Walton 1997) also shows that, to analyze the appeal to expert opinion type of argument, we need the idea that an expert's credibility as an arguer is often attacked or questioned (for example, in legal argumentation). Then this attack is used to argue for nonacceptance of the expert's argument. What appears to be needed then, and what is lacking in the current systems of formal dialectic, is the modeling of the participant in a dialogue as a person or agent. What is needed is to represent the idea of the person's character, or reputation for integrity, for example, as being the target of an attack in an argument by the other party in the dialogue. One can see why formal logic, in the past, has not gone this far, however, for it seems to introduce a human or personal dimension into logic that is alien to the subject as an objective discipline. This element appears to be the psychologistic aspect that was firmly ruled out of logic in the late nineteenth century when it grew to be a purely formal and mathematical discipline. And yet it is clear that legal evidence, based so often on witness testimony, directly depends on this notion of the credibility of the source. So one might now ask whether the concept of commitment, as introduced by Hamblin into formal dialectic, should be

2. See the account in Hamblin (1970, 159–60).

enough to model the kinds of arguments involved in fallacies. A commitment set is, after all, a set of propositions.

The concept of the commitment store does act as a kind of *persona* of an arguer's personal stand or position on an issue in argumentation. Hence it does come some distance towards modeling a participant in a dialogue as a person or agent, with qualities of character that could persist over longer sequences of argumentation in the dialogue. And indeed, throughout the history of informal fallacies, the *ad hominem* type of argument has frequently been identified with argumentation from the commitments of the other party in a dialogue, as noted above. But the question for us is whether this notion of participant in a dialogue goes far enough so that it adequately models the concept of the person as arguer involved in the personal attack argument that is the basic type of *ad hominem* argument. Can it be used to model the concept of credibility involved in the kind of argument where an expert's credibility is questioned, and then that questioning is used to criticize the appeal to expert opinion as an argument? In recent work on these two fallacies (Walton 1997; 1998a), it is concluded that both these types of arguments require a framework in which an arguer is seen as a participant in a dialogue who has a certain degree of credibility. It is the impeachment of this arguer's credibility as a participant in collaborative dialogue that is the focus of the attack.

What needs to be done to model these types of source-based arguments in formal dialectic is to introduce a credibility function. This function goes from a participant in a dialogue to that participant's argument used in the dialogue. Accordingly, an evaluation of a participant's credibility (as high or low) can affect the evaluation of that participant's argument that she proposed in a given instance. As an example, suppose that a witness in court has put forward testimony, and the evidence provided by his statement is evaluated as strong. In the argument from testimony, the premises can provide strong support to make the conclusion plausible, because the witness is presumed to be in a position to know about the facts. But then let's suppose that the cross-examiner attacks the character for veracity of the proponent with some plausible allegations, mounting a plausible and well-supported *ad hominem* argument against the proponent. The next event in the dialogue should be a devaluation of the credibility of the proponent, which would, in turn, lead to a reduction in the plausibility value of the argument that the proponent has advanced. The credibility function takes a downward evaluation of the arguer's credibility, in this case, to a downward evaluation of the plausibility value of that participant's argument. But in a trial, much depends on whether such an attack on character would be judged to be relevant.

In ancient times, for example in Roman law, the *ad hominem* argument was

the basis of common legal strategy. The argument was essentially of the form, "He is a bad person, therefore he must be guilty." However, this form of argument is so powerful that modern rules of evidence take great care to restrict its use: "Generally, the contemporary rules prohibit the Government from introducing evidence of the defendant's immoral character in an attempt to establish his propensity to engage in criminal behavior" (Wellborn 2000, 27). FRE Rule 404b prohibits the introduction of evidence of a person's prior wrongful conduct for the purpose of showing a propensity to act in accord with the character expressed by that conduct. There are basically two kinds of exceptions to this prohibition. The defendant is free to present evidence of his own good character, but once he makes this move, it is relevant for the prosecution to question the previous claim that his character is good, or even to then proceed to attack his character as bad. The other kind of exception concerns the character of a witness. Since witness testimony depends on the credibility of the witness, questioning the character of the witness, or even attacking the character of the witness, is judged to be relevant. In legal argumentation then, the *ad hominem* can be relevant under certain conditions. When it is relevant, it can be an extremely powerful way of attacking the credibility of a party, leading to a downward evaluation of the plausibility of that party's argument.

In other cases, the credibility function could take the evaluation of an argument the other way. Suppose that a proponent has put forward an argument that is weak, or not very plausible, because little in the way of evidence has been advanced to support the argument. But then suppose that the proponent's credibility is enhanced. This upward evaluation of credibility could occur for various reasons. It could be that the proponent is shown to be an expert in a domain of knowledge into which his argument falls. Or it could be that the proponent is shown to be a person with an established record of achievements of a kind that makes her character appear to have high ethotic value. In other words, she is seen to be a person of great integrity that we would respect as trustworthy and having *gravitas*, or seriousness of character. On the grounds of this high credibility rating, because of the credibility function, the plausibility value of her argument is then raised.

Formal deductive logic appears to offer no way of modeling the operation of the credibility function in a way that would be useful to help in evaluating appeals to expert opinion and *ad hominem* arguments. Of course, we have expert systems that model the reasoning of an expert in a domain of knowledge. But by themselves, such systems do not tell us what to do when using the evaluation of an expert as a source as part of the means for drawing conclusions on what to accept in a typical legal kind of case, for example, when the experts disagree. What would be useful would be some general method for reasoning from a

database, where the propositions in the database come from different sources, and lead to different conclusions, and where there is a need to choose between these conclusions on some rational basis, even if it is inconclusive. We now turn to a general method of logical reasoning that is useful for this purpose.

In Walton (1998a, chap. 6), five subtypes of the direct (or so-called abusive) type of *ad hominem* argument are recognized, according to the aspect of the arguer's character that is attacked: (1) veracity, (2) prudence, (3) perception, (4) cognition, and (5) morals. Each of these types of direct *ad hominem* is called ethotic, in the sense that the character (*ethos*) of the arguer is involved. In the appeal to expert opinion, an argument is judged to have greater plausibility on the grounds that the arguer has positive *ethos*, because she is supposedly an expert. In the *ad hominem* argument, the arguer is attacked on the grounds that she has negative *ethos* (bad character). The five subtypes of negative ethotic *ad hominem* arguments, representing the most common types of direct *ad hominem* arguments found in the case studies surveyed in Walton (1998a), are the following. Here *a* stands for the arguer, or agent, if you like.

Negative Ethotic Argument from Veracity
a has bad character for veracity
Therefore, *a*'s argument should not be accepted

Negative Ethotic Argument from Prudence
a has bad character for prudent judgment
Therefore, *a*'s argument should not be accepted

Negative Ethotic Argument from Perception
a has bad character for realistic perception of the situation
Therefore, *a*'s argument should not be accepted

Negative Ethotic Argument from Cognitive Skills
a has a bad character for logical reasoning
Therefore, *a*'s argument should not be accepted

Negative Ethotic Argument from Morals
a has a bad character for personal moral standards
Therefore, *a*'s argument should not be accepted

The fifth scheme is more general than the first two, and may be taken to refer to personal moral characteristics other than veracity or prudence. All five of the argumentation schemes cited above presume a context of dialogue in which one party has already put forward some particular argument on an issue two parties are discussing, and the second party is criticizing the first party's argument by

using one of the arguments cited above. In other words, the *ad hominem* argument is not just any personal attack. It must be the use of personal attack to criticize or refute an argument that has been put forward by the person who is the subject of the attack.

One context of legal argumentation in which these forms of argument are especially significant is that of cross-examination. By asking a series of probing questions, the examiner can bring out various aspects of the witness's character that will cast doubt on his credibility in the eyes of a jury or judge. Davies (1993, 375–76) has cited a number of personality disorders that a witness can be hiding. If a witness can be shown to exhibit any of these disorders by means of questioning, it can lessen his credibility. For example, suppose the witness is clearly threatened by benign questions, and even displays aggression in reacting to them. This response could reveal a paranoid personality disorder. This disorder is manifested by persistent interpreting of actions of others as menacing or insulting (372). Evidence of a disorder of this type would suggest to a jury that the witness has bad character for prudent judgment. This suggestion could also be elicited if the witness can be provoked into showing anger, loss of control, or inappropriate responses, like laughing when he should be serious. Bad character for realistic perception of a situation can be shown if the witness shows evidence of illogicality like basing his claim that the light was green "because a spirit confirmed that fact to him" (375). Bad character for veracity can be shown by the witness who can be shown to have lied when telling the truth would not have been harmful. Bad character for moral standards can be shown through a history of violent relationships. Bad character for logical reasoning can be shown if the witness reacts too strongly to criticism or is easily led to a contrary opinion (376). If the advocate has any prior evidence of any of these character defects in the witness, she can use ethotic argumentation as a powerful strategy of cross-examination by asking questions that will tend to get responses triggering one of the five kinds of *ad hominem* argument patterns above. The persuasive effect on the jury can be extremely powerful. The reason is that witness testimony depends on the credibility of the witness.

We see in both the *ad hominem* and *ad verecundiam* types of argument a central characteristic of using an evaluation of the *ethos* of a speaker. The argument from *ethos*, either positive or negative, can be used to influence judgment on how the argument should be evaluated as strong or weak. It is this notion of the credibility of the speaker affecting the plausibility of the speaker's argument that is the framework in which both the *ad hominem* and the *ad verecundiam* fallacies need to be analyzed. Notice also that the evaluation of these types of argument will depend on the context of dialogue in which the argument was used. In the Federal Rules of Evidence, for example, representing a legal frame-

work, ethotic arguments from veracity may be judged relevant in cross-examining a witness, whereas negative ethotic arguments from morals might not be considered relevant. Or to cite another instance, a negative ethotic argument from perception might be quite a relevant and strong argument in a deliberation dialogue, whereas the same argument could be quite a bit weaker, or even irrelevant, in a persuasion type of dialogue.

But how could this kind of argumentation be modeled in a formal dialectical system? What is already present in the current systems of formal dialectic is a framework in which a proponent can put forward an argument, made up of a set of statements (propositions) in which one is designated as a conclusion. The other statements in the argument are meant to be premises that support, or give reasons to the respondent to accept that conclusion. The argument is evaluated on the basis of (a) how plausible the premises are, and (b) how strong is the inference from the premises to the conclusion. The two measures of evaluation of the acceptability or strength of the argument are (a) the measure of premise plausibility, or worth as evidence, and (b) the measure of the strength of the inference link between the premise-set and the conclusion. Different standards for evaluating (b) are possible, including deductive validity, inductive strength, and abductive (or presumptive) strength. This sort of structure is already present in the various formal systems of dialectic that are already known. What, then, needs to be added to it, to deal with arguments of the special kind that depend on an arguer's credibility?

What needs to be added is some sort of way of evaluating an arguer's so-called credibility as a proponent of an argument. Credibility is based on the common argumentation practice of some cases where the proponent has a certain *ethos*, that is, a character or reputation, of a kind that can influence how her argument is received in a dialogue (Brinton 1986). If an arguer has a positive *ethos*, for example, if she is an expert in the domain of knowledge into which the argument falls, and has a personal reputation for honesty and integrity, that positive credibility will, quite appropriately, tend to make her argument more plausible. It will make the argument more highly acceptable to the respondent to whom it was directed. More credibility leads to more plausibility. But suppose that an arguer has a bad reputation for veracity, or shows by her performance in a dialogue that she exaggerates, and uses all kinds of fallacies and tricky deceptions. A respondent to whom her arguments are directed in a dialogue could use that information to downgrade the plausibility of her argument, at least to some degree. Such arguments are commonplace in legal argumentation, as indicated above. They can be relevant, and extremely powerful. However, sometimes they are justifiable, and sometimes not. Sometimes *ad hominem* ar-

guments are reasonable, and sometimes they are not. The problem is to have a proper structural basis for making this determination.

The *ad hominem* argument, and particularly the circumstantial subtype, was known to the ancients, not as a fallacy, but as a kind of argumentation that could be used to attack a speaker's argument, and make it seem less plausible (probable). In the *Rhetorica Ad Alexandrum*, the author (Anaximenes?) tells us that one type of argument that can be used against an adversary's argument is to argue on the basis that your "adversary's speech is self-contradictory or whether his action itself contradicts his words" (1430a20–21). The latter type of argument, that of attacking an adversary's argument by showing that his actions contradict his words, is what is now known in logic as the circumstantial *ad hominem* argument. The author of the *Rhetorica Ad Alexandrum* gives an even more precise description of this type of argument, and indicates that it involves an attack on the character of the adversary. He wrote that such an argument is carried out "by considering whether the speech (of your adversary) is self-contradictory in any respect, or whether what has been done is contrary to justice or law or expediency, or to what is honorable, practicable, easy, or probable, or to the character of the speaker or the nature of the circumstances" (1430a26–30). The applicability of this kind of *ad hominem* attack in a legal context is made evident here, because the argument fits with common methods of cross-examination in court, as indicated above

To accommodate the possibility of such evaluations, what is required is some way of evaluating a person's character, insofar as such an assessment of character is relevant to an assessment of the person's argumentation in a dialogue. The relevance of such assessments will clearly vary with the type of dialogue that the participants are taking part in. For example, in a scientific discussion in a physics seminar, the character of the scientist putting forward an argument is not relevant to an evaluation of his argument on quantum theory, or some other topic in physics. But when the same scientist testifies as an expert witness in court, his reputation for veracity would be relevant (at least, from a point of view of the rules of evidence). Van Eemeren, Meuffels, and Verburg (2000) have experimentally shown that the variation on how respondents ranked *ad hominem* arguments as fallacious or not depended on the context. Respondents viewed *ad hominem* arguments in a scientific discussion as less reasonable than in political debates or domestic discussions. So while character is not always relevant, when it is relevant, what is presumed is that there can be some rational basis for evaluating an arguer's character, either positively or negatively, in certain respects that relate to an evaluation of his argumentation in a context of dialogue.

So first, it must be assumed that there is some way of evaluating an arguer's character in some relevant respects. Then second, it needs to be assumed that this evaluation can, at least in some cases, transfer over to an evaluation of that arguer's argument. What is needed, in short, is a credibility function that takes values of the arguer's *ethos*, or personal character for argument, and then transfers this evaluation to an assessment of her argument that is already in place. What is needed then is a function that takes the given plausibility of an argument as a prior value, and then updates or modifies this value, according to the character assessment. But how can such a credibility function be introduced into the structure of formal dialectic? It would seem that what needs to be done is to re-think the notion of a participant in a dialogue, so that the participant has some sort of characteristics as an arguer that are of a lasting sort, that persist over the sequences of argumentation in the dialogue. But what could these characteristics be? And how could we get an account of them that does not make the structure of the dialogue anthropomorphic or psychologistic, in a bad way, that would defeat the purpose of the formal dialectical structure as an objective normative framework that can be employed in logic?

3. LABELED DEDUCTIVE SYSTEMS

A labeled deductive system (Gabbay 1996, 67) begins with a database, containing "declarative units" of the form $t{:}A$, where t is a label and A is a formula. The label t is said to "annotate" the formula A. The use of annotations attached to formulas (propositions) can have various applications. One is to indicate what conclusion should be drawn from a database that contains several arguments leading to different, or even opposite, conclusions. To cite a simple example given by Gabbay (1996, 67), suppose we have a database containing two propositions, A and B. Suppose the database also contains the annotation t for A, and the annotation s for B. Suppose it is also known in the database that s has a higher evidential priority than t. Finally, suppose that the database also contains the two conditional propositions, $A \rightarrow \neg C$ and $B \rightarrow C$, and that both conditionals have equal priority. In this situation, there are two lines of reasoning available, represented by the following pair of valid arguments.

$$\begin{array}{ll} A \rightarrow \neg C & B \rightarrow C \\ A & B \\ \hline \neg C & C \end{array}$$

The conclusion that should be derived is *C*. The reason is that *s*, which annotates *B*, has a higher priority than *t*, which annotates *A*. *C* is better supported than ¬*C* because the greater weight of evidence that *B* has (greater than that attached to *A*) is transferred to *C* by the inference. In a kind of case where we have to choose between *C* or ¬*C*, the comparative weight of evidence available in the data base, on balance, tilts towards acceptance of *C*.

What sort of information could be contained in a label? In the example above, it was a priority, indicating that one proposition was based on more weighty evidence than another. In another example, it could be an annotation giving the source of evidence on the basis of which a proposition was accepted into a database, like a medical file, or the pronouncement of a panel of social workers. In another case, it could be the name of a person (source) who put the proposition in question forward, along with some indicator of the reliability of that person as a source of data (Gabbay 1995, 311). For example, a label could be (John, 0.7), where the figure is some comparative indication of how reliable John is as a source, compared to other sources annotated in the database. As indicated in the case above, these labels could be an important factor in deciding which conclusion to draw from the database.

Labeled Deductive Systems (LDS) are a big step forward in the evaluation of *ad hominem* and *ad verecundiam* arguments, as well as other legal arguments based on the credibility of a source. It enables us to base our evaluation of such arguments on a label indicating a comparative assessment of the source of the propositions that were put forward. If an appeal to expert opinion, for example, was based on a source that is weak, this data can be used to assist with our evaluation of reasoning in which the appeal is a part. When an *ad hominem* attack is used to discredit a source as untrustworthy, at least we now have some basis for evaluating the argument in relation to the label that annotates the source. But is that the end of these matters? It would seem not. For the big problem with *ad hominem* arguments as fallacies is one of relevance (Walton 1998a). As shown above, *ad hominem* arguments are sometimes relevant in legal argumentation used in the courts. But the problem is that they can be extremely powerful in persuading a jury (that someone is guilty of a crime, for example), even when they are not relevant. The big problem with *ad verecundiam* arguments is that juries are frequently too awed by experts, even intimidated by them. A cross-examining attorney needs to ask the right critical questions so that assumptions are revealed, and the testimony of the expert is put in a right perspective, where important qualifications may need to be pointed out (Walton 1997). To get a grip on how these arguments can be used fallaciously, we need to better understand how they sometimes deceptively look persuasive, even when they should not be. We need to understand more about the source,

and more about how that source should be questioned by a critic who has to deal with the *ad hominem* or *ad verecundiam* argument critically.

Experts who testify in court are often practitioners of some skill, and to examine the expert testimony, an attorney needs to ask many practical questions about how something was done, or how it should have been done. When an expert's credibility is attacked by an *ad hominem* argument, questions of competent execution of actions feature prominently in the examination. It would seem reasonable that, to supplement deductive logic, the kind of goal-directed reasoning called practical reasoning would need to be taken into account. Although practical reasoning has not yet been formalized in the way that deductive systems of reasoning have, it does have a structure of a kind that shows its potential usefulness in modeling *ad hominem* and *ad verecundiam* argumentation.

4. MULTI-AGENT SYSTEMS

It is here that the notion of an agent from the technology of multi-agent systems in computer science comes in. An agent, according to Franklin and Graesser (1996, 22), is an entity that can perform autonomous execution of actions, can perceive its environment, including the effects of its own actions, through sensors, and can modify its actions in view of what it sees. Also, an agent is an entity that has goals, and that bases its actions on its goals. So far, this notion of an agent fits perfectly with the notion of an agent in practical reasoning as sketched out above. In computing systems, an agent is a computing entity, like a piece of software, that performs delegated tasks autonomously (Caglayan and Harrison 1997, 4). For example, in Microsoft Windows applications like Power Point, an Answer Wizard answers the questions of the user through a tab interface in which the user can ask questions. Another example would be an Internet agent that is used in information retrieval. This type of agent makes decisions about what kind of incoming information is useful, what kind of information should have priority, and what kind of information should be filtered out.

An important characteristic of multi-agent systems is that an agent can "engage in dialogs and negotiate and coordinate transfers of information" with another agent (Franklin and Graesser 1996, 23). The agent interacts in a dialogue with the user in order to receive instructions and to inform the user about the completion of a task (Caglayan and Harrison 1997, 5). The agent needs to have intelligence or reasoning ability to make appropriate decisions based on what it takes to be the goals of the user. In engaging in dialogue with another agent, the agent must be able to have some capability of estimating what the goals of the other agent are, and some capability of using that information in

guiding its moves in the dialogue. This account gives us some idea of what the capabilities of an agent are, and how the agent is a goal-directed kind of entity. But for purposes of formal dialectic, how exactly should the concept of an agent be defined? What is important to recognize is that there can be different ways of defining the concept of an agent, for different purposes, in different types of dialogue contexts. But within AI, there is some basis for agreement on the range of ways in which the term 'agent' is used.

Wooldridge and Jennings (1995, 116–17) distinguish between two usages in AI of the term 'agent,' which they call the stronger and the weaker sense. According to the weaker sense, an agent is a computer system that has the following four properties (116).

1. *Autonomy*, meaning the agent has control over its actions and internal states.
2. *Social Ability*, meaning that an agent can interact linguistically with other agents.
3. *Reactivity*, meaning that an agent perceives its environment and reacts to changes in it.
4. *Pro-activeness*, meaning that an agent can take the initiative in its goal-directed actions, so that it is not just responding to these changes in its environment.

According to the stronger sense, an agent has the following four additional properties (117).

5. *Mobility*, meaning that an agent can move around an electronic network.
6. *Veracity*, meaning that an agent will not knowingly communicate false information.
7. *Benevolence*, meaning that an agent will do what is asked, and not have conflicting goals.
8. *Rationality*, meaning that an agent will act in order to achieve its goals, and not prevent its goals from being achieved (in line with its beliefs about these matters).

Wooldridge and Jennings (1995) report that the weaker sense of the term 'agent' is relatively well accepted in computer science, while the stronger sense of the term is more contentious, and not so widely accepted.

For the purpose of this investigation, the characteristics of an agent can be grouped under two general headings. One is the reasoning used by the agent as it perceives its external circumstances, and its ability to take into account its knowledge of these circumstances as it carries out goal-directed actions (and

perceives the effects of these actions on the changing external circumstances). The second group of characteristics has to do with communication with other agents. The same abilities are used, but instead of acting on "circumstances" the agent is acting (mainly linguistically) on other agents, who respond in dialogues to these linguistic actions (speech acts). The first group of characteristics has been studied in philosophy under the headings of action theory and practical reasoning, as outlined above. The second group has been studied in the area called argumentation theory, although the central kind of speech act studied has been that of argument. Clearly agents can interact in other ways than by arguing with each other. For example, explanation is an important form of communicative interaction for agent technology. But argumentation is important, and in many ways central.

Multi-agent reasoning poses a number of philosophical questions, and also suggests a number of directions in which the field of applied (practical) logic (argumentation theory) needs to be extended. At the same time, research on multi-agent reasoning can profit from investigations of closely allied subjects currently being studied in work on argumentation and informal fallacies. According to Wooldridge and Jennings (1995, 364), a major problem with multi-agent systems is that "the overall system is unpredictable and nondeterministic: which agents will interact with others in which ways to achieve what cannot be determined in advance." What is needed is "a sophisticated means of dealing with incomplete and conflicting viewpoints" so that agents can "help with decision support tasks" (365). In fact what is needed in multi-agent technology is a systematic taxonomy of the different types of dialogue in which argumentation is most often used, so that argumentation and practical reasoning between agents can be understood and evaluated as a contribution to a goal-directed collaborative dialogue exchange. As shown below, dialogue logic, based on the dialectical framework outlined in Chapter 5, can offer such a systematic framework.

To fully accommodate the notion of the credibility function, of the kind that is outlined above, it seems to be the stronger notion of an agent that is needed. To deal with the evaluation of *ad hominem* arguments, for example, characteristics like veracity and rationality (as defined by Wooldridge and Jennings) are the key. The characteristics that are especially important are those that pertain to the collaborative qualities of sincerity and trustworthiness. These are the very qualities required in the kind of cooperative conversational exchange described by Grice (1975), as shown in Chapter 5, Section 1. What seems to be required is that both agents in a dialogue must have a set of these character traits, and that both agents can either be aware of the other party's traits, or at least come to know something about them, as a dialogue proceeds. Also, certain

events, or kinds of moves in the dialogue made by a participant, need to be distinguished as identifiable patterns of argumentation that can be perceived by the other participant as evidence of the first participant's character traits. For example, suppose that a participant becomes committed to both a proposition and its negation, and refuses to budge from this position even after the other party has explained the contradiction and challenged it. Such a refusal would be evidence of a kind of insincerity in the character of the party who was challenged. It is a relevant character fault in a critical discussion, for example, because it means that the offender is not collaboratively taking part in the dialogue in a way that helps it along towards its goal of resolving the initial conflict of opinions by rational argumentation.

5. ADDING AGENTS TO FORMAL DIALECTICAL STRUCTURES

Following the outline of how the structure of formal dialectic was set up by Hamblin (1970, chap. 8; 1971), the usual assumption is that in a framework of dialogue, there will be two participants, called the proponent and the respondent. As each of these two participants makes moves in the dialogue, propositions will be inserted into or deleted from their respective commitment stores, according to the commitment rules. But nothing is really said about the internal makeup of these two participants. Hamblin only requires of them that "they speak in turn in accordance with a set of rules or conventions" (1970, 255). The various kinds of moves made by the two participants, and the rules they need to follow in making these moves, are described in some detail by Hamblin. But very little is said about the participants themselves, by way of describing any properties they might have that might be important for evaluating the kinds of moves they make when arguing with each other in a dialogue exchange. The same lack of citing any specific properties of the participants in dialogues was still true of work in this area quite recently. For example, in Walton and Krabbe (1995), sets of rules for different types of dialogue are described in detail, but comparatively little is said about the properties of the participants in the dialogues. This lack was understandable for several reasons. One reason is that these works represent the beginning stages of serious work in the field of dialectical logic, and the basic types of dialogue and the rules were important to establish, and these factors seemed like the most basic elements to concentrate on. Another reason is that any attempt to define the qualities or characteristics of the participants would have made the dialogue concept appear anthropomorphic, especially to critics who, from the standpoint of the traditional formal logic, were even dubious about the whole dialogue idea altogether. The dia-

logue idea seemed too personalistic and subjective to bring into the field of logic. Yet another reason is that it appeared that there was no real need to bring in constraints on the characteristics of the proponent and respondent, because there was no evidence that the analysis of such characteristics was useful or necessary for the purpose of evaluating argumentation.

But now the questions posed are: (1) How would the concept of an agent, as used in AI, be useful to add to formal dialectical structures of the kind used in applied logic to evaluate argumentation? (2) And how could the concept of an agent be modeled in formal dialectical structures so that it could fit in with the existing formal systems of dialogue logic already developed by Hamblin (1970; 1971; 1987), Mackenzie (1981; 1990), Walton and Krabbe (1995), and Lodder (1999)? At this point, what is needed is a discussion of these two questions. The best basis to discuss these two questions is the acknowledgment of the concept of agent that already exists in the literature on practical reasoning in the field of action theory, as indicated in the remarks on this topic in Chapters 1 and 2.

The type of dialogue in which practical reasoning is most typically used in everyday conversations is that of deliberation. Deliberation, as shown in Chapter 5, arises from a need to take prudent action in a given situation. Deliberation can be a solitary procedure in some cases, where a single agent looks at the arguments on both sides of a dilemma, and plays devil's advocate for the side that does not represent her own commitment on the issue. But in many cases deliberation is a collaborative type of dialogue involving two or more agents. In such a case, the agent needs to communicate. Now, from the literature in philosophy on practical reasoning, it has been made clear what an agent is, at least to some extent, and how agents can not only reason, but reason together in a dialogue format. But this account is too narrow, in certain respects. For one thing, agents can engage in dialogue other than the deliberation type. They can also engage in negotiations, and in the persuasion type of dialogue that is so central to the study of informal fallacies. But even further, agents have qualities of character that are an important part of how we should evaluate their arguments when they reason together in dialogue exchanges. We need to clarify the notion of an agent even further, with respect to how agents interact with each other in dialogues.

One reason why it could be useful to model a participant in a dialogue as an agent (in at least the weaker sense) is that it would enable us to grasp how argumentation in a dialogue is a realistic kind of communication exchange between the participants. In this kind of dialogue, the one party is really reacting in an autonomous way to the moves of the other party, and not just following a pre-determined set of rules. This modeling would help us to understand cases where a participant in a dialogue violates the rules, in response to some prior

move of the other party, in a way that is simply not comprehensible from the rules alone. Generally, to understand and evaluate the moves made in many realistic sequences of argumentation, a participant needs to be seen as an autonomous goal-directed entity. Such an autonomous participant in dialogue will react to the moves of another party in a way that is in line with trying to carry out her own goals, whatever they may be. A participant in argumentation will have not only rules or conventions for a conversational kind of exchange that enable us to understand her moves in a dialogue. For us to understand the rationale of such moves well enough to be able to evaluate them as good or deficient arguments, we need to see how she personally reacted to a prior move of the other party. We need to appreciate how she is able to recognize that a move made by the other party in the dialogue is significant. As an autonomous agent, she can grasp the other party's argument as a move that affects her own position in the dialogue in a certain way, so that she can then react to it appropriately at the next move. To accomplish such a feat of recognition and reaction in a way we recognize as intelligible, a participant needs to be viewed as more than just a commitment store. She needs to be seen as having the capability to grasp something in her dialogue environment as input, to be aware of it as a certain type of move, with potentially significant consequences for the outcome of the dialogue. She also needs to react to it appropriately at the next move (or at least be capable of doing that). It is exactly our awareness of the significance of sequences of such moves that enables us to recognize them as argumentation tactics. They are sequences of dialogue moves that are goal-directed, and are based on an arguer's own internal goals. They are also based on her appreciation of how the sequences of argumentation moves of the other party represent the attempts of the other party to engage in goal-directed activity that is going in the opposite direction.

Judging from the case studies of interactive dialogues characteristic of examples where fallacies and other problems of argumentation evaluation are at issue (Walton 1995), how do the participants contestively interact with each other in sequences of verbal argumentation in dialogue exchanges? What is required is to see the process as one in which the one party is not only aware of the move the other party has made; she must also be able to recognize that move as being a certain type of move, like a question or an argument, and to have some grasp of its significance in the dialogue. To evaluate some cases, account may also have to be taken of the extent to which the participant has recognized, or failed to recognize, that the move made by the other party is inappropriate, at that particular point in the dialogue. If a move, in a given case, is inappropriate, it may be important to try to judge how the recipient of the move reacted to it, and how she saw a deficiency in it. Such matters of argumentation tactics are

vital in evaluating particular cases in applied logic, to judge whether or not a fallacy was committed in a given case.

It might be noted here that with respect to the negative ethotic argument from prudence, and also the circumstantial *ad hominem* argument, where an agent is accused of acting in a way contrary to her stated goals, practical reasoning is vital to an analysis and evaluation of the argumentation. The preferred method of analysis in such cases is the action-state semantics of Hamblin (1987, chap. 4) that has been refined for use in systems of dialogue in Walton and Krabbe (1995, Appendix A). The key notion is the *partial strategy* of an agent (Hamblin 1987, 155–58), the set of paths of action from which the addressee of an imperative should select one individual action (deed) at a time in order to follow a strategy of action. This notion of a partial strategy is central to Hamblin's theory of imperatives, and it is vital to understanding how attributions of actions, especially those associated with circumstantial *ad hominem* arguments, should be evaluated in dialogues. An agent needs to be seen for such purposes, as an autonomous entity which has a set of partial strategies in a case where the agent is seen as carrying out an action, or as having the capability of carrying out an action, or several alternative possible courses of action.

6. EVALUATING FALLACIES AND BLUNDERS

To judge whether or not a fallacy was committed in a particular case, what is required is not necessarily to know the actual intention of the supposed fallacy committer, but to have some grasp of how the sequence of argumentation in question was used by the proponent as a tactic to get the best of the other party by presenting the argument as one that would appeal to him. Typically there is an element of deception in such cases. We need to see how the arguer was trying to deceive the other party by the use of some sequence of moves that looks like it should be persuasive, or at least that looks like an appropriate sequence of moves for a dialogue. We need to use the given textual evidence to try to judge whether a systematic argumentation tactic was being used, or whether the deficiency in the sequence only represents a mistake or "blunder" (Walton and Krabbe 1995). In evaluating such cases, where mistakes and conversational miscommunications need to be understood and evaluated, the device of viewing both participants in the dialogue as agents is useful.

Grice (1975) showed us how various kinds of infelicities and floutings of postulates of polite communication in conversational exchanges can be insightfully explained as calculated violations of the collaborative rules of dialogue, as

opposed to merely being mistakes.[3] Making a remark that is obviously irrelevant to the conversation, for example, could be a way of communicating the message that what the other party has just said is inappropriate or impolite. But to understand exactly how such a remark is irrelevant, you have to see it as a kind of tactic used for some conversational purpose, in reaction to the previous move in the conversation by the other party. To grasp the real import of such a sequence of moves, an observer must grasp the significance of the prior move, and must understand what would constitute an appropriate reply in that type of collaborative conversational exchange at that point in the conversation. The observer must also grasp that each party in the dialogue has normal proactive expectations about how the other would appropriately move in this type of dialogue.

So it is to grasp this kind of evaluation of sequences of argumentation that the concept of the arguer as agent is extremely useful. A lot of everyday argumentation is only comprehensible as argumentation of a kind that can be evaluated as logical or illogical because each party in a dialogue has expectations of how the other party should normally react to a certain move, at a particular point in an argument exchange. We expect the other party not to make replies that are clearly irrelevant, for example, and not to say things that both parties, quite clearly, already know. We expect another party not to say things that we know are false, and that she knows we know are false. And if she makes such a move, an *ad hominem* or personal attack argument, based on a questioning the arguer's character for veracity, can be quite appropriate and reasonable.

Generally, the type of circumstances in which *ad hominem* and *ad verecundiam* arguments need to be evaluated are cases in which there are two sides to an argument used in a dialogue. There may be some evidence for a proposition A, and also some evidence for the proposition $\neg A$, for example, and the problem is to decide which of these two propositions should be accepted. Let's consider a kind of case like that in Gabbay (1996, 68), where the evidence for A is slightly stronger, but where it is possible to attack the source of A. In what is called by Gabbay "priority logic" such an attack could be a correct move. In a balance of considerations case, where the known objective evidence is insufficient to prove either A or $\neg A$, we may still need to decide, for practical purposes, which proposition to accept. We can't accept them both. But suppose the arguer who has vouched for A has some known defect of character that is a good reason for doubting his credibility. In such a case, evidence of that defect would be a reason for reducing the weight of acceptance attached to A in the dialogue. On a balance of considerations, the next rational move in the dialogue

3. See Chapter 5, Section 1.

would be to reduce the plausibility value (the weight of acceptance) for *A*. Let's say that this reduction is sufficient to make it the case that, on balance, ¬*A* now has the greater weight of acceptance. In this situation, the rational conclusion would be to retract commitment to *A*, and to commit to ¬*A*. At any rate, in this kind of situation it could be reasonable to accept an *ad hominem* argument, based on the credibility of the person who advocated that argument. And it would be reasonable to use that argument to alter one's commitments in a dialogue on a balance of considerations basis. In such a case then, some known facts or evidence concerning the character of a participant in a dialogue could be relevant to the rational evaluation of an argument in the dialogue, because part of the evidence that is relevant in the dialogue is the credibility of that person. The person is seen as an autonomous agent who has certain characteristics that can be relevant to weighing his credibility.

7. HOW SHOULD 'AGENT' BE DEFINED IN FORMAL DIALECTIC?

The question now is how exactly should 'agent' be defined for purposes of formal dialectic. This question is tricky, because it may be that 'agent' needs to be defined differently in the different types of dialogue structures that have been identified. Hence no single, univocal definition gives all the information needed to fully understand how the concept of an agent should work in formal dialectic. However, it is fairly clear from the discussion above that the concept of an agent needs to meet the following requirements.

1. It must be an entity that is capable of having a commitment store attached to it, so that statements can be inserted and removed from this store, and a record made of these changes, and of what is in the store, at any given point in a dialogue.
2. It must be an entity that has goals, and that can carry out actions, based on these goals.
3. In particular, it must be able to carry out verbal actions in dialogue communications with another agent.
4. It must have the capability to be aware of the external circumstances in its environment, and an awareness of how its actions produce effects on those circumstances.
5. In particular, in a dialogue, it must have the capability to grasp the import and meaning of the communicative actions of another agent in the dialogue, so that it can react in an appropriate way.
6. It must have qualities of character, especially insofar as such qualities are

necessary for two agents to engage in collaborative, goal-directed dialogues with each other. For example, it must be capable of having qualities like veracity and sincerity, insofar as such qualities need to be generally presumed in collaborative goal-directed dialogues of various kinds, as indicated by Grice (1975).

With respect to item 6, there needs to be some kind of evidence that is accessible to participants in a dialogue that allows a participant to make some estimate of another participant's character, insofar as this participant's character is relevant to an evaluation of his argumentation put forward in the dialogue. This evidence bears on the credibility of the agent, as a participant who can be relied on to take part in a collaborative dialogue in a constructive way. So, for example, if a participant puts forward statements that are known to be false, and that presumably, he knows are false, or if he persists in using arguments that are irrelevant to the issue being discussed, that should signal something about his character. In turn, this knowledge about the agent's character can yield relevant evidence relating to how his arguments in a dialogue should be evaluated. Some aspects of an arguer's character may be irrelevant to such an evaluation. For example, if we find out an arguer lacks generosity or courage, that finding may not tell us too much about the arguments on the abortion issue he has just put forward in a discussion on the issue. But if we find good evidence in the dialogue that the agent is a habitual liar, or persists with maintaining a position even though it has been pointed out that it contains a significant contradiction, this finding may certainly alter our assessment of some of the arguments he has put forward.

The biggest factor in showing the need for a shift in the field of dialectical logic towards consideration of the characteristics of the participants in a dialogue as agents is the evidence from work designed to evaluate source-based arguments that require a credibility function. What then needs to be added to formal dialectic to make it possible to build in a component that would accommodate the credibility function attached to a participant in a dialogue? What needs specifically to be added to the present framework of formal dialectic is the modeling of a participant as not just a set of commitments, but as an agent, and moreover, as an agent that can be said to have a certain degree of credibility. Even more, what needs to be added is the kind of LDS structure in which the credibility assessment can play a role in how the reasoning in a case is evaluated, so that it can function as a rational basis for selecting one conclusion over another. Also, certain characteristics of agents, like their veracity, or the practical consistency of their actions, need to be seen as part of the basis for the assessment of credibility. All this begins to look like a complicated set

of structures needed to be brought to bear on the evaluation of cases of source-based arguments. What is centrally needed is to expand the concept of a participant beyond being a mere repository of commitments in a dialogue, and define a participant as being an agent in the sense outlined by Wooldridge and Jennings (1995). In particular, it is necessary to see an agent as an entity that has the property of veracity, the sixth characteristic of an agent in the list given by Wooldridge and Jennings above.

Some dialectical requirements also need to be added. There needs to be a presumption that a participant in a dialogue will not knowingly communicate false information. This presumption needs to be considered, not only with the other maxims of collaborative dialogue coming under the Gricean (*CP*), but as a characteristic built into the participant herself, by defining the participant as an agent. Thus a participant in a dialogue should not only be seen as having the four characteristics of the weaker usage of the term 'agent,' but also as an entity that has the four characteristics of the stronger sense of 'agent.' Other social attributes of commitment could come in here as well, like the property of honesty defined by Castelfranchi (1995). What has been revealed to be particularly important, from the discussion above, are the three attributes of veracity, benevolence, and rationality. But clearly with respect to the *ad hominem* and *ad verecundiam* arguments, the attribute of veracity is especially important. An agent participating in a dialogue should be seen as an entity that not only has commitments, but can generally be presumed to be trustworthy, or to have veracity, when it puts forward an argument or opinion based on those commitments, or when it makes those commitments apparent in a dialogue. Accordingly, the respondent in the dialogue will evaluate the proponent's arguments and other moves in accord with his (the respondent's) estimate of the veracity of the proponent. And this estimate, in fact, should be carried out in accord with the way the credibility function works. If a proponent shows lack of veracity, the respondent should react by lowering the credibility value he attaches to the proponent's argument. If the proponent gives evidence to support a presumption of high veracity, the respondent should make an upwards credibility adjustment.

8. DIALECTICAL SHIFTS AND RELEVANCE

To get the deepest understanding of how the *ad hominem* and *ad verecundiam* arguments work as fallacies, we need to come to grips with the notion of dialectical relevance. An *ad hominem* argument or appeal to expert opinion argument that is quite reasonable in a persuasion dialogue, might be irrelevant in an in-

quiry where character is not part of the issue, and where hard scientific evidence that can be directly verified is all that should count as relevant. The deepest problem with the *ad verecundiam* and *ad hominem* as fallacies is that they are so powerful when used in the right context of dialogue that we may overlook the shift to their use in a different type of dialogue, where they really are not relevant. As shown in Chapter 7, judging dialectical relevance in a given case is often associated with the existence of a dialectical shift in that case.

In everyday arguments, there can be a dialectical shift, or movement from one type of dialogue to another, during the same sequence of argumentation. For example, during a negotiation dialogue, where a homeowner is negotiating the cost of basement renovations with a contractor, the two may temporarily switch to an information-seeking type of dialogue. In this secondary dialogue the homeowner may ask the contractor about how concrete work is done, or what the city regulations on the depth of a concrete basement floor are, and so forth. In this kind of case the shift to the information-seeking dialogue could be beneficial to the satisfactory progress of the negotiation dialogue. So, in such a case, we would say that the dialectical shift is licit. Illicit dialectical shifts can occur where the advent of the second dialogue is obstructive to the progress of the first one. For example suppose that two parties are supposed to be having a critical discussion on the issue of abortion. But then as the discussion gets more heated, the pro-choice advocate switches to an eristic kind of dialogue where she uses a personal attack against the other party. She might argue, "Well you're a man, a one-sided arguer who is just not objective about the issue, and therefore your argument is not worth much!" In this case, the dialectical shift would be illicit if the discussion was originally supposed to be a critical discussion, but then the one party unilaterally shifted to a quarrelsome kind of dialogue. The *ad hominem* attack would be said to be irrelevant, for this reason, and could be judged to be a fallacious argument. This phenomenon of the dialectical shift in *ad hominem* argumentation was clearly observed by Aristotle (*Topica* 8.11), when he remarked that sometimes the questioner in a dialogue is forced to argue against the respondent, instead of arguing against his thesis, if the respondent "takes every means of thwarting him with unscrupulous effrontery." Aristotle comments that such an arguer is a "bad associate" as a partner in the dialogue, and that his "perversity" makes the argumentation "eristic" (Poste 1987, 167).

Many of the traditional informal fallacies are failures of relevance of a kind associated with an illicit dialectical shift during the course of an argument. One of the most interesting fallacies of this type is the *argumentum ad consequentiam*, or argument from consequences. The following textbook example is from Rescher (1964, 82).

> The United States had justice on its side in waging the Mexican war of 1848. To question this is unpatriotic, and would give comfort to our enemies by promoting the cause of defeatism.

Presumably, in this case, the context is that of a critical discussion of the issue of which side "had justice" on its side in the war of 1848. When one of the participants uses argument from consequences, citing supposed bad consequences of the other side's maintaining its view, there is a shift to a practical type of discourse (deliberation). Because of the shift, the argument from consequences is not really relevant in the critical discussion. Rescher (82) diagnoses the fallacy as a failure of relevance. If the original dialogue had been a deliberation on how to avoid defeat in a current war by avoiding defeatism, the argument from consequences would have been relevant (even though, in fact, it does not seem very plausible, in any case). What makes the argument irrelevant is that the dialogue was evidently supposed to be a critical discussion. So from that perspective, the argument from consequences is beside the point.

Many of the other traditional fallacies can be explained, in many instances, as being arguments in which a dialectical shift occurred. For example, the *ad baculum* argument, or appeal to threat, could be a relevant argument, in some instances, where the context of use is that of a negotiation dialogue. In union-management negotiations for example, threats of strikes and slowdowns, or threats of wage cuts, are often a normal part of the bargaining process. But suppose that during a philosophy seminar where there is a critical discussion of some topic in ethics underway, one party threatens the other party. Such a move would be transparently seen as irrelevant and inappropriate (in that context). So the concept of a dialectical shift is very useful in helping to explain why and how many of the traditional fallacies represent failures of argumentation.

The concept of a dialectical shift also points up some anomalies in the traditional treatment of fallacies however. Appeal to expert opinion has often been treated as a fallacious type of argument in the past (see below, and also Hamblin 1970, 42–44). But now, with the advent of expert systems, it tends to be judged more as a reasonable type of argument. In fact, a shift from another type of dialogue to an expert consultation dialogue (a subtype of information-seeking dialogue) can be a licit shift that is highly beneficial to the original dialogue. For example, during the course of an inquiry, experts may be called in to give testimony and advice, and such an interval of expert consultation dialogue could vastly improve the progress of the inquiry, and even be essential to it. The concept of a dialectical shift is clearly necessary to understand how the appeal to expert opinion works as a kind of argument that can be quite reasonable in many instances, but can be abused or used ineptly in other cases.

The problem posed in Section 6 above is one of evaluating when matters of an arguer's character are relevant when cited during the course of an argument. What is involved is a transition from a given sequence of argumentation in a dialogue on some subject being disputed to a subdiscussion of matters of the character of one of the participants. For example, in a trial, the problem could be one of a witness testifying in a case, where the cross-examining attorney starts to question the credibility of the witness by bringing his honesty into doubt. Or in ordinary conversational argumentation, the problem could be one of deciding how to judge an *ad hominem* argument that one party has used against another in a critical discussion of some disputed issue.

A clue to how to handle such cases has already been given in Walton and Krabbe (1995, 125), where this kind of case is treated as a dialectical shift from a permissive type of dialogue to a tightened up kind of dialogue where the rules for the exchange are made more precise. This kind of case involves a kind of shift to a type of dialogue in which one party probes towards a deeper clarification of the other party's position on the issue. For example, suppose two parties are engaging in a persuasion dialogue on the abortion issue, and one of them appears to have contradicted himself, or otherwise given some indication that he may not be sincerely taking part in the persuasion dialogue. To put it in Gricean terms, the suspicion is that he is not following the cooperative principles of the dialogue by collaborating in a constructive way. In a persuasion dialogue, there is a general presumption that participants will be collaborative, and follow the maxims of polite communication. But the conversational rules are not enforced precisely by any absolute rules. You could say that the cooperativeness of the participants is based on trust, or on a presumption of collaborativeness. So a dialogue of this sort is a permissive type of persuasion dialogue. The participants have some freedom, and the rules are not enforced in a rigid manner. However, if there is evidence that one participant may be violating the rules, then the dialogue may shift to a tightening up phase. In this phase, the other participant may question the sincerity and collaborativeness of the other party by engaging in a probing explanatory sequence of questioning. It is this phase that corresponds to the ad hominem attack. The presumed offender's prior commitments and moves in the dialogue may have to be probed, raising questions about his sincerity and character for veracity.

The exact technology for modeling this kind of shift has already been presented by giving structures for both the initial permissive type of persuasion dialogue and the rigorous type of dialogue. In a permissive type of persuasion dialogue (**PPD**), in Walton and Krabbe (1995, 135), a move is a six-tuple, in which a participant can choose to put forward any or all of the following six types of moves: (1) retractions, (2) concessions, (3) requests for retraction, (4)

requests for concessions, (5) arguments, and (6) challenges. In this respect the **PPD** type of dialogue is more complex, and more permissive than the Hamblin type of dialogue structure outlined above. But in the rigorous type of persuasion dialogue (**RPD**), the kind of response each player can make is tightly regulated (Walton and Krabbe, 1995 154–63).

The precise rules are not so important for our purposes here. And in a legal case, the rules of evidence, which define relevance, and give precise rules for judging when character is deemed relevant in a trial, are defined by codes like the Federal Rules of Evidence. What is important here is to see that there is a kind of shift involved, and that the problem is one of fitting the subconversation after the shift into the flow of the preceding dialogue. What is central is that the persuasion dialogue depends on Gricean presumptions about the collaborativeness of the participants. When the presumed collaborativeness of a participant is called into question, bringing matters of the arguer's ethical character into question, such an *ad hominem* attack can be judged to be relevant in some cases. The reason it is relevant is that the persuasion dialogue is permissive in nature generally, and therefore depends for its success on the presumed honesty and collaborative willingness to participate in a constructive fashion. If this honesty is not manifested in the moves a participant makes, it is a serious impediment to the success of the dialogue. In principle then, *ad hominem* arguments are relevant, provided the dialogue after the shift fits into the main persuasion dialogue in a constructive way that contributes to the goals of this prior dialogue exchange. *Ad hominem* arguments should be evaluated retrospectively, from the viewpoint of the type of dialogue the participants were originally supposed to be engaged in.

Whether or not character evidence is relevant is very much influenced by the type of dialogue that a given argument is supposed to be part of. In the main argumentation stage of the criminal trial, character evidence is not generally relevant, as indicated in Chapter 1, Section 6. In the sentencing stage of the criminal trial however, character is highly relevant. The reasons behind this difference have been brought out by Landon (1997, 613). During the argumentation stage of a criminal trial, the goal of the dialogue is to look backwards to try to determine what happened on a specific occasion. During the sentencing stage, the goal of the argumentation is to try to determine a policy for the future. In the sentencing stage, the court is trying to punish the offender in line with the goals of sentencing. Character evidence is highly relevant for this purpose. Evidence of past convictions or bad acts, for example, can be very important evidence in making judgments on recidivism, or habitual criminal behavior. In general then, the relevance of character evidence depends on the purpose of a dialogue, and varies depending on what stage a trial is in. But of

course, in certain instances character evidence can be relevant even within the main argumentation stage of a criminal trial.

In any kind of argumentation, like the giving of testimony in a case in court, where trust and an assumption of honesty is properly a part of the evaluation of the argument, *ad hominem* arguments will generally be relevant. The participant in the dialogue will start out with a given degree of credibility, even if there is no prior evidence of his honesty or dishonesty. But if there is some evidence of his dishonesty, and his honesty is brought into question, then that questioning will have an effect on the presumption that he is collaboratively taking part in the discussion. Any successful argument against his character as an agent will therefore lower his credibility rating (according to the credibility function). Such an interlude of questioning the arguer's character could be relevant, and could be reasonable generally as an argument, provided several conditions are met. But as stressed above, the evaluation of any particular case will depend, first of all, on the type of dialogue the participants were originally supposed to be engaged in. But it will also depend on the type of *ad hominem* argument used, on the evidence brought forward to support the premises for that type of *ad hominem* argument, and on how strongly that evidence supports the conclusion to be proved. All these matters need to be judged by examining the form of the *ad hominem* argument, in line with the various types of arguments identifies in Walton (1998a). You have to ask whether it is a direct type, a circumstantial type, a bias type, a poisoning the well type, and so forth, and then study the details of the case to see whether the requirements for that type are met in the case.

9. THE SOLUTION TO THE PROBLEM

The technical solution to the problem now advocated is to use the basic type of dialogue framework already presented in Hamblin, Mackenzie, and Walton and Krabbe, where a participant is simply thought of as an individual, and nothing further is said about the make-up or content of the participant. What needs to be added is an additional, optional type of enriched system in which a participant is defined as an agent. This type of system can be called an agent dialogue. In an agent dialogue, both participants, the proponent and the respondent (or however many participants there may be), need to have certain characteristics relevant for different types of dialogue attached to them. For example, in a deliberation type of dialogue, an agent needs to be open to new, incoming information, and to alter her commitments based on this new information, once

it becomes known to her. This characteristic could be called "reactivity to circumstances," or something of the sort.

The next important feature of an agent dialogue is that each agent has a credibility function. Going into the dialogue, each participating agent will have a particular credibility rating. If nothing relevant is known, the agent would have a rating that is "normal" for that type of dialogue. But then, as new evidence about that agent's relevant character is revealed by her performance in the dialogue, that evidence will bring the credibility function into operation, raising or lowering that agent's credibility by a degree appropriate for the evidence. For example, suppose a speaker advocates the thesis that young people should not take drugs, and then it comes out in the dialogue that he admits he continues to take drugs himself. This evidence would trigger the characteristic of "hypocrisy" (or the positive character quality would be something like "being consistent in your personal actions with a policy you are advocating for everyone"). Once the character of the agent with respect to this negative feature of hypocrisy is revealed in analysis of the agent's partial strategies in the dialogue, the credibility function comes into action. His personal credibility as an agent who is advocating a particular policy is downgraded, and therefore his argument for that policy is rated as correspondingly less plausible in the dialogue.

Or, to take another kind of case, suppose that a participant in a dialogue is rated as an expert in a domain of knowledge into which the claim she is making falls. Suppose she is highly rated as an expert in this domain, and that therefore her initial credibility is high. Suppose, for example, she is giving you financial advice on what investments to make. But then you find that she is making demonstrably false claims about the performance of certain stocks that she gets an unusually high fee from, if you buy them. If the evidence for these statements is quite convincing, it will show something about her character that is relevant for the kind of planning or information-seeking dialogue the two of you are engaged in. The resulting lowering of her personal credibility in the dialogue as an agent will bring the credibility function into play. You will, quite justifiably, begin to distrust what she says, and assign less plausibility to her arguments.

This technical solution to the problem raises a number of other problems. One of the foremost of these is the problem of deciding when (1) it is best for the dialogue to keep talking about the issue being discussed in an impersonal way, that does not bring the participating agents or their characters into it at all, or (2) it is best to bring the credibility function into play by switching to an agent type of dialogue. Put in terms of traditional logic, this is the problem of *ad hominem* argumentation. When is character relevant, and when is it better

to leave it out of the picture and just have an impersonal discussion of the issue? There are definite dangers of bringing personal matters of character into the dialogue, in many cases. The dialogue could turn into a personal quarrel, or (as well) this concentration on matters of the personal could take up all the time allotted for the discussion, with the result that the goal of the dialogue is not reached. Again, to put the issue in traditional terms, the question is when the *argumentum ad hominem* is a fallacy (something that blocks a dialogue, or interferes with its progress towards its goal), and when it is not.

An agent needs to be seen as beginning a dialogue with a certain degree of credibility which would be normal. If an agent is an expert in the subject-matter of the discussion, then her credibility will be higher than normal, by some appropriate degree. These initial credibility values are not determined by any moves made in the dialogue itself. They are set as the initial, given values. But as the dialogue proceeds certain types of moves, or sequences of moves, will alter these initial values upward or downward, through the operation of the credibility function.

In relation to *ad hominem* argumentation, the agent needs to be seen as having a number of traits or qualities of character. The first set of five traits—truthfulness, prudence, perception, cognition, and morals—correspond to the most common types of direct *ad hominem* arguments. But the circumstantial and the bias types of *ad hominem* arguments also need to be taken into account. Certain qualities of character need to be associated with these types of *ad hominem* arguments, and we need to know what kinds of evidence of performance in a dialogue brings the credibility function into operation to raise or lower an agent's credibility, based on some performance linked to one of these qualities.

The key character quality relating to the circumstantial *ad hominem* argument is that of hypocrisy. The evidence relating to this quality in an agent is an instance of the agent's argumentation in a dialogue where the agent advocates a certain policy, or course of action, that she says should be followed by all agents, but then she herself turns out to be committed to the opposite course of action. The typical kind of case is one where the agent is criticized in the dialogue on the basis that she "does not practice what she preaches." For example, she gives a lecture saying how bad it is to take drugs, and concludes that nobody should take drugs, but then she admits that she has not only taken drugs in the past, but is still taking them. Such a speaker is open to the circumstantial *ad hominem* attack, on the grounds that since she says one thing but does the opposite, she is a hypocrite—an agent who is not herself personally committed to the very course of action she advocates for everyone.

It is fairly clear from the case studies of the circumstantial *ad hominem* argument in Walton (1998a) what sort of evidence corresponds to the finding that

an agent is a hypocrite in this type of case. There is, first of all, the circumstantial inconsistency, which amount to an inconsistency in the agent's commitments. Evidence of this kind of inconsistency is taken to indicate that the agent is not a sincere participant in the dialogue. Second, there is the evidence from the dialogue on how the agent reacts to the charge of inconsistency when challenged. In some cases, the apparent inconsistency can be admitted, but can also be explained in a way that rebuts the charge of hypocrisy. But in other cases, the arguer tries to squirm out of the inconsistency without really admitting it, even though the evidence is there. Particularly indicative in such a case is the evidence of a closed attitude or "closed mind," where the agent won't budge in the dialogue, and refuses to try to explain or even admit the inconsistency. The agent may even try to use irrelevant *ad hominem* arguments to try to attack the critic. In such a case, the evidence comes from the sequence of dialogue after which the charge is laid, in which the reaction to the charge is part of the dialogue exchange.

Another type of *ad hominem* argument that needs to be taken into account is the bias subtype, where the one party accuses the other of having a particular bias. One type of evidence of this claim is the having of something to gain by the party who is accused of being biased. For example, in a debate on the environmental issue of acid rain, one party may accuse the other of being in the pay of a coal company. Such a bias type of *ad hominem* attack would have quite an impact, especially if the attacked party had failed to announce her affiliation at the outset of the debate. Once the attack was made, if it could be supported by convincing evidence, it would mean that the agent's credibility as an open-minded participant in the dialogue would be lowered. The suspicion would be that she is secretly always pushing for the one side, instead of collaboratively looking at the evidence on both sides of the issue. The quality of character involved in this type of *ad hominem* argument is one of openness to the evidence on both sides of a dispute, as opposed to having made up one's mind beforehand on one's conclusion. There is a presumption in a persuasion dialogue that an agent will honestly look at the evidence on both sides revealed in a dialogue, and not just take a one-sided approach.

In law, the type of evidence that could be called "corruption" can sometimes come under the bias category and sometimes under the direct *ad hominem* category. For example, is proof that the witness tried to bribe another witness evidence of bad character or evidence of bias, or could it be evidence of both? This question is important because evidence of this sort is admissible to prove bias but not to prove bad character, according to Federal Rule of Evidence 608b (Allen, Kuhns, and Swift 1997, 676). The answer is that it could be taken either way, depending on the probative weight of the argument and the spe-

cifics of the case, according to Allen, Kuhns, and Swift (677). If it can be inferred from the corrupt act that the witness has an interest in the outcome of the case, the *ad hominem* argument should be classified as being of the bias subtype. But if it can be inferred from the corrupt act that the witness has bad character, say for veracity, then the *ad hominem* argument should be classified under the direct category.

In addition to the five qualities of character relating to the direct *ad hominem* argument, other qualities can be important as well. The qualities of sincerity (and its opposite, hypocrisy), and openness (in the sense of being capable of going with the evidence on either side, and not always sticking to one side) also need to be taken into account. Once again, failures of these qualities could come under the bias category, the direct category, or even the cricumstantial category of *ad hominem*. What should happen in a dialogue, a conversational exchange of the sort described by Grice (1975), is that it is presumed at the outset of a dialogue that both participants have all these qualities of character or attitudes. Both participants begin the dialogue with a certain normal degree of credibility, on the grounds that both are presumed to follow Grice's cooperative principle (CP). This principle requires that both will collaboratively contribute to the progress of the dialogue by making the appropriate kinds of moves at the various stages of the dialogue. Participants are expected to use relevant arguments, not to obviously contradict what they just said before, and so forth. Any evidence of a breach of one of these presumptions will affect an arguer's credibility, downwards.

10. CONCLUSIONS

In this investigation, the goal was to find some useful way of assisting with the evaluation of reasoning in source-based arguments. Such arguments are common in legal argumentation, and rulings are made on when they are relevant and when not in the Federal Rules of Evidence, but what kind of formal structure could be brought to bear, of a kind that might be useful, for example, in applying artificial intelligence to legal reasoning? In this investigation, we began with one formal method that is applicable, and then moved along to other formal structures that also appear to be needed, if a deeper modeling of source-based argumentation is to become feasible.

We started out with LDS, because it is basic to the formal modeling of source-based arguments, and because it has a formal structure well investigated by Gabbay (1996). Here, the annotation of the source of declarative units used in an argument is the key. This method is applicable to the kind of argumenta-

tion used in a trial setting in law, where a conflict of opinions needs to be resolved, and where most of the argumentation used for this purpose is source-based (witness testimony). But then, the next problem is how to evaluate the characteristics of the sources, leading to a credibility assessment that is the basis of the annotation. Taking this step requires seeing the proponent of an argument as having certain characteristics that relate to her credibility as a source. The standard resources of deductive logic offered no way of solving this problem. So then we turned to practical reasoning. Even there, the resources had to be expanded. Another tool was needed. For this purpose, we used agent-based systems as the tool of choice.

But then, even still, to evaluate aspects like relevance and questioning of a source, we had to work in a framework of multiple agents interacting with each other through argumentation. But source-based arguments are used for different purposes in different types of dialogues. To handle this aspect of the evaluation, we had to move to yet another structure, that of formal dialectic. And even at that, we had to introduce an expansion into formal dialectic by modeling the participants as agents, in a way that goes beyond the usual approach to formal dialectic. The formal structure resulting is now quite complex. But the applicability of this expanded framework to the problem of the evaluation of *ad hominem* and *ad verecundiam* types of arguments is highly promising, in relation to modeling the kinds of parameters that are needed to deal in a useful way with the evaluation of cases studies of these types of arguments. The new framework can even go so far as to help explain, through the notion of the dialectical shift, how these powerful kinds of argumentation can be used as fallacies of irrelevance.

It is concluded that the dialogue structures currently in use in the modeling of fallacies can be enriched in a useful way by introducing an additional set of families of dialogue types in which the participants are defined as agents in the sense in which this term is used in multi-agent systems. The deliberation type of dialogue in which the argumentation contained is typically that of practical reasoning yields the basic notion of what an agent is. An agent is a goal-directed entity that carries out actions based on its goals, and on incoming information on its situation, and in particular, feedback directing new actions on the basis of what is perceived about the consequences of the old ones. An agent, in particular, can carry out verbal actions in dialogues with another agent, and the two of them can discuss their goals, and plan on how to carry them out. They can not only engage in such joint deliberations, but can also engage in other types of dialogue, like negotiation, persuasion dialogue, information-seeking dialogue, investigative dialogue (inquiry), and even in some instances eristic (quarrelsome) dialogue.

The other main thing about agents that engage in argumentation in such dialogues is that each agent has a credibility function that can be triggered by certain kinds of evidence, especially when such evidence is used to back up certain kinds of criticisms by the other party in the dialogue. But exactly what kind of evidence is this, and what items in the agent—specifically in the character of the agent as an entity with certain stable characteristics or traits—are the basis of these criticisms? Here we get into the topic of the traditional *ad hominem* and *ad verecundiam* fallacies. At this point, the going gets tougher, and we must go into an area that has been little explored, but nevertheless, based on case studies on these two fallacies, some hypotheses have been put forward.

In any dialogue, an agent will begin with a given degree of credibility, and this rating will affect certain kinds of arguments put forward by that agent. Also, an agent has certain character traits that are vital to judging how this credibility function affects the plausibility of her arguments. These character traits include the ones we have defined as veracity, prudence, perception, cognition, morals, sincerity, and openness. When one of these traits is alleged to be a relevant basis for an adjustment in a credibility function, for example in the form of an *ad hominem* attack on one agent by another, there is a dialectical shift. The shift is from a permissive type of dialogue to a rigorous subdialogue in which the attack is sorted out and evaluated. During this subdialogue, five questions need to be considered.

1. What aspect of allegedly bad character was the focus of the attack, and does it fit one of the traits appropriate for this type of attack?
2. What is the evidence supporting the allegation of bad character?
3. Is the *ad hominem* attack relevant?
4. What modification of the agent's credibility rating should be the outcome of the argument?
5. What new plausibility value should be given to the argument of the agent who was criticized?

The general framework is that an agent is viewed as a participant in dialogue who not only has goals, and the capability for actions, but who also has certain stable characteristics of types that can be relevant to an assessment of some of her arguments used in that dialogue. This notion of an agent is a rich one, but it is not always needed, when evaluating arguments. The complicating factor is that in some cases of arguments, traits of the arguer's character are actually relevant to how her argument should be evaluated. The term 'relevant' is meant in the dialectical sense—a relevant argument is one that is potentially useful to move the sequence of argumentation in the dialogue forward toward its goal.

Accordingly, the same argument can be relevant when used in one context of dialogue, but irrelevant when used in a different context of dialogue. When a personal attack argument is relevant in this sense, if the evidence available backs it up, the outcome should be a reduction in the credibility rating of the arguer who was attacked. Accordingly, the outcome should be that the credibility function is brought into operation, with the result that the argument criticized is given a low plausibility value.

As shown in analyses of *ad hominem* argumentation, however, there are many shortcomings of this type of argument. Sometimes the personal attack is not relevant. Sometimes there is insufficient evidence to support it, but because of the smear effect, the attack gains a great deal of plausibility by innuendo anyway. Sometimes, as in the case of the poisoning the well type of *ad hominem* argument, the attack is used as a sophistical tactic to close off the dialogue and to prevent the attacked agent from taking any further meaningful part in the dialogue. Each individual case needs to be evaluated on its merits. But now at least we have the framework needed for such evaluations.

9

HOW TO USE THE NEW METHOD

This chapter provides a summary of the findings of the previous eight chapters, and shows how to use the concepts and techniques developed in these chapters. Ten component techniques, each one a special tool in the new method of analysis and evaluation of legal argumentation, are brought together. Some of these techniques will appear novel or unfamiliar to some readers. By putting them together in a holistic method, the intent is to make it easier to appreciate them, and to see how to use them. They can have many uses, but the primary use they are meant to have is to give some logical structure to legal argumentation as it has been used in a given case. In other words, given any particular case where legal argumentation of any sort has been used, the method enables a user

to reconstruct the chain of reasoning used in the case. On this basis, the method enables the user to evaluate the arguments in the case as plausible or implausible, weak or strong, relevant or irrelevant, fallacious or not, and so forth. The part of the method called argument diagramming is especially useful for purposes of managing and evaluating evidence in a legal case. In this chapter, it is shown how this technique has a precise mathematical structure. And it is shown how it can easily be applied to legal evidence.

Chapter 9 also discusses the limits of these new techniques. Many of these techniques were known in the ancient world. But they have been neglected for over two millennia. Only in the past thirty years has the study of dialectical argumentation been taken up again as a serious branch of logic. In many ways, these methods are new, untested, and controversial. They show great promise as applied to legal argumentation. But there should be grounds for caution in applying them to legal reasoning. For one thing, logic has an oblique relationship to legal argumentation. Legal reasoning has an underlying logical structure, but in many other ways, legal reasoning is tied to statutes, court rulings, procedural rules, issues of justice, and other factors that carry a lot of weight, and need to appreciated. For another thing, the new dialectical techniques of logical analysis and evaluation of argumentation are still in the exploration stage. A lot could be achieved if legal scholars could be encouraged to pay more attention to these new techniques and help to develop them further.

1. THE NEW METHOD

What is distinctive about the method of analysis and evaluation of legal argumentation proposed in this book is that it applies several techniques and frameworks in one large method. One of the main frameworks is the use of the argumentation schemes. Another is the use of normative models of dialogue to evaluate the use of an argument in the context of a given case. One of the main techniques is that of argument diagramming. This technique is already well established in informal logic as a working method, and its structure has been developed in a formalistic way by Freeman (1991), Snoeck Henkemans (1992), and Walton (1996). In fact the method of evidence evaluation of Wigmore (1935), as shown in Chapter 4, Section 8, is, as far as its formal structure is concerned, a special use of what is now known as the argument diagramming technique. The use of diagrams to analyze legal evidence has been proposed by Friedman (1986), Schum (1994), and Gordon (1995). But both of the former two methods have used probability. The difference in the method proposed here is its extension to plausible reasoning. Perhaps the most revolutionary part

of the new method developed in this book, when you look over the methods as whole, is the use of the forms of plausible inference outlined in Chapter 2 when viewed as used for different purposes in different types of dialogue.

Each of these individual component techniques or frameworks has already been studied in the literature on argumentation theory, and this book is not the place to work out any specific details of how to formalize or further work on any of them. What is unique to this book is the new perspective it throws on legal argumentation by combining these techniques together in a new approach that goes in quite a different direction from the traditional work in legal logic. In this final chapter I will show how all these components fit together to provide a new method for evaluating legal argumentation and approach generally to the study of legal argumentation.

I shall begin by listing the ten components of the new method developed in this book:

1. The forms of inference listed in Chapter 2
2. The revival of the ancient idea of plausible reasoning as applied to these inferences
3. The probative function concept as explaining how probative weight is transferred from the premise to the conclusion of such an inference through the chaining together of inferences in a case
4. The use of the method of argument diagramming to map out the network of inference in a given case
5. The types of dialogue as normative models in which arguments, explanations, and other kinds of moves can be evaluated pragmatically
6. The concept of dialectical relevance, based on the chaining forward of reasoning within a context of dialogue
7. The revival of the theory that legal relevance is based on an underlying concept of logical relevance
8. The new plausibilistic theory of evidence
9. Extending the dialectical system to agents as participants in the dialogues
10. The use of the credibility function in evaluating arguments depending on the credibility of an agent

If we take a case after both sides have presented their arguments in a trial, and view it as the presentation of the whole body of evidence to the trier, then Wigmore's technique of representing the structure of evidence in a case in his new science of evidence is comparable to the new technique to be used. The main updating required is that Wigmore's method of argument diagramming is quirky and unsystematic, in that key distinctions in the modern method are

not made in any systematic way, and odd notations are used that have not been found useful. The modern method of argument diagramming that has been developed in informal logic is a much better place to start, when it comes to the method of mapping out the argument structures of evidence in a legal case. This much said, however, Wigmore was remarkably ahead of his time in advocating the use of the method of argument diagramming as a tool of legal argumentation. What Wigmore (1935) basically does is to draw up an argument diagram, which looks like a large flow chart representing all the steps of inference used in the body of evidence that has been presented by each side in a trial. So you have a pair of argument diagrams on which each single item of evidence is noted as a point, and the lines connecting the points are the inferences, all chained together, representing the sequence of reasoning in the presentation of the evidence. Such a pair of argument diagrams to represent the argumentation on both sides of a case also represents the core technique of the new method.

However, as we have seen, not all cases of legal argumentation can be viewed as being exactly at this particular stage of a dialogue. To generalize the method so that it is applicable to any and all cases, the dialectical notion of the normative model of dialogue has to be brought in. Grice (1975) showed how relevance and other important aspects of argumentation are dependent on conversational postulates. An argument as an implicature needs to be judged with respect to how it functions as a contribution to a collaborative conversation or dialogue. To approach any case for analysis and evaluation, the first question must always be—what type of dialogue is it supposed to be? Then we have to ask further questions about what stage the dialogue is in, and so forth. The method of diagramming has various uses. Its primary use in informal logic is to reconstruct argumentation in a given text of discourse by constructing hypotheses about what the text may be plausibly taken to mean. In law, this method can be used in statutory interpretation, as shown in Chapter 5, Section 9. It can also be used to represent fact-finding argumentation in a trial. For example, it can be used, as Wigmore proposed, to represent the whole body of evidence presented by one side or the other, once the argumentation stage of the trial is completed. Or it could be used at any particular point in the trial, to summarize and model the evidence that has been introduced up to that point. It could even have rhetorical applications. For example, it could be used by a lawyer who is mapping out her strategy before the trial begins. It could have other uses as well. It could be used to critique and evaluate the argumentation in a trial, as part of a case study method in jurisprudence. It could be used to teach law students how to improve skills of argumentation and critical thinking. It could be used to help pre-law students improve the kinds of reasoning skills they will find useful

in law school. It could be used to educate university students in critical thinking courses about argumentation and evidence in our legal system.

Generally then, the new dialectical method can be seen as comparable to Wigmore's technique of summing up all the evidence in a case by diagramming the argumentation on both sides. And in certain respects, especially in its use of diagramming of evidence, it is similar to methods already advocated for legal use by Schum (1994) and Friedman (1986). But the new method not only develops a special kind of method for using this technique, but places it as one tool within a new dialectical system of modeling legal argumentation and evidence. As shown below, the new method uses a mathematical structure in which the argument diagram is precisely defined. And this structure is embedded within a formal dialectical structure of multi-agent dialogues. The two structures must be used together in evaluating any argument used in a legal case.

2. INFERENCE FORMS AND CRITICAL QUESTIONS

One of the big differences in the new method is the defeasible nature of the forms of inference outlined in Chapter 2. The evaluation of these inferences is carried out within the new theory of plausible reasoning. In each inference, as used in a given case, when the inference is structurally correct, the premises throw a probative weight onto the conclusion. This weight, transferred through the probative function, brings the plausibility value of the conclusion up to that of the premises. For example, in a linked argument, the plausibility value of the conclusion would be upgraded to that of the least plausible premise. But generally the kind of argumentation characteristic of the legal uses of all these kinds of inference is defeasible. That is, even though such an argument has probative value in a given case, and the premises give a respondent good reasons to accept the conclusion, the respondent may still need to ask critical questions. We need to see the argument as being judged with respect to its place in a dialogue. If the dialogue is not closed, the argument may be open to further questioning and to re-assessment. In the subsequent dialogue, suppose that the respondent asks appropriate critical questions, and the proponent is unable to give satisfactory answers. The argument may be defeated, and the previous acceptance of it as plausible may have to be retracted. How the evaluation of the argument goes from any given point in a dialogue, generally, depends on the appropriate critical questions.

Argument from sign has the following form (Chapter 1, Section 3).

MAJOR PREMISE: Generally, if this type of indicator is found in a given case, it means that such-and-such a type of event has occurred, or that the presence of such-and-such a property may be inferred.
MINOR PREMISE: This type of indicator has been found in this case.
CONCLUSION: Such-and-such type of event has occurred, or the presence of such-and-such type of property may be inferred, in this case.

The critical questions matching this inference form are the following.

CQ1: What is the strength of the correlation between this indicator and the event or property inferred?
CQ2: Are there other explanations that would account equally well or better for the presence of this indicator in the case?

The second critical question reveals how argument from sign is a form of inference from the best explanation of a given finding. But since other explanations of a given finding are generally possible, any argument based on inference from sign is defeasible.

When argument from sign is used in a given case, it is often possible to expand the argument and show that it contains implicit premises. For example, consider again the chain of argumentation revealed in the Sacco and Vanzetti case, studied in Chapter 6, Section 1. Argument from sign was involved. For example at step two, we could say that Sacco's putting his hand under his coat was a sign of his intent to grasp a concealed weapon. So it would have been taken by the police officer who arrested Sacco, and afterward, it was taken as a sign of intent to grasp a concealed weapon. But if you look at the analysis of this case as represented by the seven steps in the argumentation presented in Chapter 6, you realize that the argument from sign is not as simple as it appears. As shown at step two, the argument from sign depends on a plausible assumption that was not explicitly stated in the case. This missing premise is the generalization that persons arrested while carrying concealed weapons might try to grasp these weapons. What this case illustrates is a common phenomenon in legal reasoning. An argument from sign, based on a bloodstain, for example, or some other item of evidence, can often be analyzed further by showing through an argument diagram that it is a complex chain of reasoning based on implicit premises. This phenomenon is typical of many abductive arguments. They may look simple on the surface, but often conceal a network of argumentation based

on plausible assumptions that were not explicitly stated in the given text of discourse, but function as additional premises in the argumentation.

The form of inference for argument from analogy (Chapter 1, Section 1) is the following.

MAJOR PREMISE: Generally Case C1 is similar to case C2.
MINOR PREMISE: Proposition *A* is true (false) in case C1.
CONCLUSION: Proposition *A* is true (false) in case C2.

Given that the premises are true, or have some probative weight in a particular case, that probative weight is shifted to the conclusion. But an argument from analogy is defeasible, and is open to the following four critical questions (Walton 1996b, 79).

CQ1: Are C1 and C2 similar, in the respect cited?
CQ2: Is *A* true (false) in C1?
CQ3: Are there differences between C1 and C2 that would tend to undermine the force of the similarity cited?
CQ4: Is there some other case C3 that is also similar to C1, but in which *A* is false (true)?

The first two critical questions are simply addressed to the two premises of the argument from analogy. Critical questions 3 and 4 are stronger in nature, in that they suggest ways of refuting the argument from analogy that require more thought and preparation.

Argument from an established rule has the following form of inference.

MAJOR PREMISE: Generally, if this case fits established rule *R* then the decision of what to do in this case should follow what is stated by *R*.
MINOR PREMISE: This case fits established rule *R*.
CONCLUSION: The decision of what to do in this case should follow what is stated by *R*.

The following are the critical questions for this inference.

CQ1: What does *R* state, and is *R* subject to interpretation so that its bearing on this case may be thrown into doubt?
CQ2: Does the present case in fact fit under *R*?
CQ3: Is there some rule other than *R* that fits the case better?

A separate way of attacking an argument from an established rule is through the counter-argument that there are exceptions to the rule. Called argument from an exceptional case, this inference has the following form.

MAJOR PREMISE: If this case is an exception to the rule *R*, then *R* does not apply to it.
MINOR PREMISE: This case is an exception to the rule *R*.
CONCLUSION: *R* does not apply to this case.

The critical questions for this form of inference are the following.

CQ1: Does this case fall under a recognized heading of a certain type of exception that has already been granted standing?
CQ2: If it is not a recognized case, can a persuasive reason be given to show why the rule *R* should not apply to it?
CQ3: If it is a borderline case, can comparable cases be cited?

The third critical question often leads to argumentation from precedents. We see in such cases that the use of one type of argument often leads to another type of argument used to match up with the first one. In some cases, doubts are raised by the asking of critical questions. In other cases, a participant in dialogue will try to refute the original argument by posing counter-arguments that match the original argument. Whatever reply is used, it is evident that all the plausibilistic arguments of the kind cited above are defeasible. They can all be challenged and defeated by the asking of critical questions, if those critical questions are not answered adequately by the proponent of the original argument in the dialogue. In many cases where argument from an established rule is concerned, the argument and the opposed counter-argument will fit together in a chain of argumentation in a dialogue that is relevant to the original issue disputed. The way to evaluate such argumentation is to look at the whole network of chained argumentation on each side of the case. Each subargument has its place in the whole network of argumentation represented by the argument diagram. An individual argument, like a particular instance of argument from an established rule, typically carries only a relatively small probative weight in the larger argument as a whole. But even so, it could be significant in determining the final outcome, when weighed alongside all the other relevant arguments in the case.

For these reasons, plausible reasoning is inherently different from deductive and inductive reasoning (of the statistical type). Deductive and inductive reasoning can be evaluated by a calculus, in a way that is independent of the con-

text of use of the argument. Using deductive classical logic or the probability calculus determines whether the argument is structurally correct or not, according to the standards of the formal method. But plausible reasoning is contextual in the way it makes an evaluation. Even if an argument has probative value, its acceptance should only be tentative, subject to further questioning in a dialogue. Such an argument is a presumption that gives only a small and slender basis of support for the conclusion, by itself. Its real value is that it can be weighed along with many other small arguments of the same presumptive kind, viewed all together in the larger body of evidence in a case. Each individual argument may have only a small probative value, by itself. But the whole network of argumentation relevant in the case, joined into a body of evidence in an argument diagram, may be holistically strong enough to persuasively shift the burden of proof to the one side or the other of the dispute in the case.

Plausibilistic arguments have been traditionally distrusted, even labeled as fallacies, precisely because of their defeasible nature. You can't put too much weight on them individually, and they can be abused, or go badly wrong as used in some cases. But still, to ignore them entirely is to overlook the central body of reasoning and evidence that is most important in legal argumentation. Legal argumentation of the kind used in hard cases in a trial or in statutory interpretation is inherently fallible and presumptive in nature. It is only through understanding and acceptance of this fallibility that a deeper grasp of legal reasoning and evidence can be achieved.

3. ARGUMENTS DEPENDING ON TESTIMONY AND CREDIBILITY

A large group of the forms of inference studied in Chapter 2 are based on argumentation from testimony of a kind that depends crucially on the credibility of the proponent of the testimony put forward. Schum has shown how courts and advocates over the centuries have found ways of assessing the credibility of witnesses by a method of asking different questions (1994, 106). Among the different kinds of questions cited by Schum are questions about the observational sensitivity of the witness, questions about the objectivity of the witness, and questions about the veracity of the witness (117). Such questions can be more specific or less specific.

The idea that testimony is a basis for a kind of argumentation that depends on the credibility of the witness was already well known and well explained in the *Rhetorica Ad Alexandrum* (1431b20–1432a4). That argumentation based on witness testimony as a species of position to know reasoning is recognized right at the beginning of this passage (1431b20): "Testimony is a confession made

voluntarily by one who knows." In such argumentation, two factors are primary. One is the plausibility of the proposition asserted by the witness. The other is the credibility of the witness. The two things should both be evaluated as having a certain weight, and the weight of the one is influenced by that of the other: "That which is testified must be either likely or unlikely or of doubtful credit: similarly the witness must be trustworthy or untrustworthy or of doubtful good faith" (1431b21–23). The way to lessen the plausibility of argumentation from testimony is to attack the character of the witness: "When we are contradicting evidence, we must cast prejudice on the character of the witness, if he is a bad man, or inquire into the evidence, if it is improbable, or else contradict both the witness and the evidence by bringing together all that is most discreditable to our adversaries" (1431b33–37). Another form of attack suggested is to allege bias by arguing that the witness is a friend of the person he testifies for, or otherwise argue that the witness has something to gain (1431b37–42). What is recognized here is the use of the *ad hominem* type of argument to attack or impeach the credibility of the witness as a means of casting doubt on the believability of his testimony.

The overwhelming preponderance of evidence in any trial is based on inferences drawn from the testimony of witnesses, and the examination of such witnesses. All such argumentation, as explained so well in the *Rhetorica Ad Alexandrum*, is based on argument from position to know. The generic type of inference called argument from position to know has the following general form, according to the account given in Chapter 2, Section 4.

MAJOR PREMISE: Source *a* is in a position to know about things in a certain subject domain *S* containing proposition *A*.
MINOR PREMISE: *a* asserts that *A* is true (false).
CONCLUSION: *A* is true (false).

The critical questions matching this form of inference are the following.

CQ1: Is *a* really in a position to know whether *A* is true (false)?
CQ2: How credible is *a* as a source?
CQ3: Did *a* assert that *A* is true (false)?

With respect to the first critical question, if *a* is an eyewitness of an event for example, one has to question things like how good *a*'s eyesight is, how close he was to the event, and so forth. Under the second critical questions, all the various forms of the *ad hominem* argument are relevant. What can be ques-

tioned here are things like *a*'s character for veracity, whether *a* might be biased, by having something to gain, for example, and generally how reliable *a* is as someone who is likely to be telling the truth. The third critical question has to do with what *a* actually asserted, and what inferences can be drawn from that assertion. Any examination of the argument from position to know may have to probe into the wording of what the witness actually said, and question what such wording may be taken to imply, or not to imply.

The most prominent and controversial special type of argumentation from position to know in questions about the present state of evidence law is the argument from expert opinion. This argument type has the following form of inference (Chapter 2, Section 4).

MAJOR PREMISE: Source *E* is an expert in subject domain *S* containing proposition *A*.
MINOR PREMISE: *E* asserts that proposition *A* is true (false).
CONCLUSION: *A* is true (false).

The critical questions matching this form of inference have been the object of lengthy study and consideration in Walton (1997), given the wide variance in logic textbooks about what form such critical questions should take. According to the general recommendations given in Walton (1997, 222–25), the following six general critical questions should match the form of inference for the argument from expert opinion.

1. *Expertise Question:* How credible is *E* as an expert source?
2. *Field Question:* Is *E* an expert in the field that *A* is in?
3. *Opinion Question:* What did *E* assert that implies *A*?
4. *Trustworthiness Question:* Is *E* personally reliable as a source?
5. *Backup Evidence Question:* Is *A*'s assertion based on evidence?

The first critical question has the function of determining whether *E* really is an expert or not, and several critical subquestions can be used to test out this claim. One can ask about *E*'s present position, location, and employer. One can ask about *E*'s professional qualifications, her record of experience, or contributions to a field of knowledge. Critical subquestions for the second critical question can ask about the specific field, whether it is a recognized specialty in some discipline, and so forth. Critical subquestions for the opinion question relate to the wording of the statement made in the expert pronouncement, questioning whether it was clear, and what inference may be drawn from the precise wording of the claim.

The *ad hominem* is a complex form of argument that can take various forms, and the first reaction to it should be to classify the case as being the direct type, the circumstantial type, the bias type, or one of the related types, like the poisoning the well subtype or the *tu quoque* (you too) subtype. The forms of inference for all these subtypes of *ad hominem* arguments have been presented systematically in (Walton 1998a). But for our purposes here, the three main subtypes are the direct, the circumstantial, and the bias subtype. The next step is to ask the critical questions appropriate for the type of *ad hominem* one is confronted with. But basically, all *ad hominem* arguments are based on personal attack on the character of the agent who is the proponent of the given argument at issue in the case. All such arguments are based on the allegation that this agent is bad person. The conclusion drawn is that the argument he has put forward should be reduced in plausibility, or given less probative weight than it had before the allegation. The key step mediating the gap between the premise and the conclusion of such an argument is, of course, the credibility of the agent against whom the allegation was made. All evidence relevant to this credibility question will be significant in evaluating the *ad hominem* argument. As the saying goes, "character is an issue." Thus the key critical questions to focus on, in reacting to this kind of argument, are (1) Has the allegation about bad character been supported by the required evidence? (2) How strong is the *ad hominem* argument, if (1) has been satisfied, and the argument is structurally correct? And then (3) Is the *ad hominem* argument relevant? The second question is especially important, because many *ad hominem* arguments that are in fact quite powerful rhetorically are, in reality, based on little more than suggestion and innuendo. Such an argument may not be entirely worthless. It may have a small weight of plausibility. But the interest of the audience in personal matters of character may be quite intense. Hence by rumor and innuendo, the weak *ad hominem* argument may have an impact on the audience far out of proportion to the real weight that should be assigned to it. This smear effect, based on the principle of "Where there's smoke there's fire" is the greatest danger of the *ad hominem* argument generally, and the hardest aspect to defend against.

In the trial, of course, the *ad hominem* argument is much more tightly restricted by the rules of evidence, or so it would appear. According to the FRE, it is not allowed to argue that the defendant has a morally bad character, and is therefore guilty as charged. But once the defense introduces character as an issue, the prosecution may be free to use this direct *ad hominem* attack. Both attorneys will be very well aware of this situation, and both will be careful to only exploit it in ways that the other side is not likely to be able to exploit. But specifically directed toward questioning the credibility of a witness, the *ad*

hominem argument is generally taken to be relevant in a trial. In cross-examination of a witness, all three main kinds of *ad hominem* argument are, within limits, legitimate and common species of legal argumentation.

Much of the FRE can be seen as designed to cope with the use of *ad hominem* argumentation in court, by setting carefully stated conditions on when character is relevant as a kind of evidence and when not. But, of course, no set of abstract rules of this kind can be leakproof. As the attorneys in any trial will be very well aware, the trial as a whole will be seen by a jury as a kind of drama in which the character of the accused is the central element. The overall strategy of both sides will generally be to attribute positive or negative *ethos* to the defendant by any means of suggestion at hand. There is really no way to rule the constant intrusion of this kind of argumentation out of the trial altogether, as many kinds of admissible evidence can create presumptions about the character of the defendant. Such arguments may not be explicitly stated by either side, but the jury can and will draw inferences from other admissible evidence that is presented. A jury will make assessments of the character and credibility of all the main figures in a trial on the basis of what evidence they have, even if many main facts are withheld as inadmissible. Particularly in cases where it comes down to one person's word against the other, the *ad hominem* argument may not only be relevant, it may be nearly the whole body of relevant evidence on which a decision has to be made.

What has been revealed is that *ad hominem* arguments are generally not fallacious in law. In fact, they often constitute the main evidence on which a whole case is balanced. How to put forward an *ad hominem* argument persuasively, and how to react to one by critical questioning, ought to be major concerns of trial lawyers. From a practical perspective, these are major concerns. But what needs to be factored in is that arguments are persuasive, in many cases, because they appear to closely resemble the types of rationally persuasive arguments that people use every day in their thinking. What really persuades is not theatrical rhetoric or clever psychology, but an argument that either commands rational assent as plausible, or looks close enough to one that it will pass muster.

With respect to the study of how legal argumentation persuades in a trial, the *ad hominem* argument is centrally important, despite the evident fact that it has long been ignored and overlooked as being of little significance as an object of study in legal logic. What needs to be seen is that legal evidence is quite different from scientific evidence, because most legal evidence, even if it is in the form of expert scientific evidence, comes before the court in the form of testimony. Testimony is based on the credibility of the witness. Therefore the framework in which legal evidence needs to be assessed is that of multi-agent

dialogue in which the character of the agent is seen as part of the argumentation, and part of the evidence. The traditional logic of propositions and quantifiers doesn't even touch on this aspect of evidence at all. One can see why a subject like logic, that prides itself on its scientific and objective character, has been reluctant to address the concept of argument as involving an agent whose credibility is relevant. But such reluctance amounts to simply ignoring what is most important for having a useful logic of legal argumentation.

4. VERBAL ARGUMENTS AND CRITICAL QUESTIONS

Another wide area that lacks any kind of adequate systematic attention in recent times is that of argumentation turning on grammar, on the meanings of words and phrases, and definitions. Argument from verbal classification has been scarcely recognized in logic, but it is easy to see that it is hugely important in legal argumentation. In Chapter 2, Section 5, argument from verbal classification was shown to have the following form.

MAJOR PREMISE: If some particular thing *a* can be classified as falling under verbal category *C*, then *a* has property *F* (in virtue of such a classification).
MINOR PREMISE: *a* can be classified as falling under verbal category *C*.
CONCLUSION: *a* has property *F*.

The main critical questions for responding to this type of argument are (1) to question whether *a* definitely has *F*, or whether there is room to doubt this claim, and (2) to question how strongly the verbal classification in the major premise holds. Terms used in natural language discourse have particular properties in virtue of which both kinds of questions can be raised. Nearly all terms are vague, and in a particular case, it may be debatable whether the description of the property *F* applies to the particular case. Even if a term is not vague, it may be abstract, and there may be room for questioning whether, or how definitely, it applies to the specifics of a given case. Terms can also be ambiguous. Terms can be loaded by connotations that imply that an action so described is wrong, and it can be argued that such implications are prejudicial.

As soon as any of the above verbal questions are raised, there may be a dialectical shift to a terminological or verbal discussion. This shift may take the form of the move from a more permissive type of dialogue to a tightened-up kind of dialogue about verbal issues. What typically also occurs is a shift to

issues of how to define key terms. Here we move to various forms of argumentation relating to the offering of definitions by both sides, and the contesting of these definitions. This kind of shift is characteristic of the kind of argumentation used in statutory interpretation. A court may have the problem, for example, of deciding how to interpret a key term in a statute in a case where that term is vague, ambiguous, or simply cannot be straightforwardly applied to the case under consideration. Then dialectical guidelines of the kind outlined in Chapter 5, Section 9, can be applied to the argumentation on the verbal question of how to interpret the term in question. The guidelines don't close the issue. But they do provide a dialectical basis for evaluating the arguments on both sides. The given text of discourse provides a basis of evidence that can be used to justify or attack the plausibility of the claims made by the one side or the other.

5. THE TRIAL AS PERSUASION DIALOGUE

In normal persuasion dialogue, there are two participants, the proponent and the respondent, and each tries to persuade the other by using premises the other will accept, or can be brought to accept. The trial, while it seems to involve persuasion, is inherently different in its set-up. In the trial, both attorneys try to persuade the jury (or more generally, the trier). In fact, the situation is not even this simple. It is quite subtle in certain respects. In one way, both attorneys are trying to persuade the jury, and not each other. But in a certain respect, the two attorneys are arguing against each other. In practical terms, both attorneys realize that they are trying not only to build their own case, but also to attack, or if possible undermine and defeat, the case presented by the other side. So in a way, each is directing his or her arguments toward the view put forward by the opposing side. Hence the dialectical framework of the trial is complicated and subtle, a shown in Chapter 5, Sections 2 and 4. The trial is basically a persuasion type of dialogue between the two advocates who make a case on each side. But the trier is a third party. The trial is an artificial and convoluted type of dialogue, in certain respects, like a play before a live audience. But according to the new dialectical theory, there is a central core in it that is meant to be a persuasion dialogue. At least, the trier should evaluate the argumentation in it by the standards and methods of the persuasion dialogue. The trier, on this view, needs to be a critical thinker who can retain information and draw inferences from that information. In particular, the trier needs to judge how plausible an account is, how credible a witness is, and other matters

of the same sort. The trier needs to consider critical questions and evaluate arguments in the context of a body of evidence in a case.

The normative model best representing the standard of argumentation in the fair trial is the subtype of persuasion dialogue called the critical discussion. The purpose of the trial is to resolve the conflict of opinions by putting the strongest arguments on both sides to the test. The fair trial is the ultimate legal test to be used in a case where there is doubt and there is no easier or less costly way to resolve the conflict of opinions posed by that doubt. The rules of the critical discussion make clear that the goal of resolving the conflict of opinions by rational argumentation can only be carried out in an efficient manner when the strongest arguments for both sides are presented, and where neither side prevents the other side from bringing forward relevant arguments that are evidence to support its claims. This aspect is the very factor that is crucial to the notion of the fair trial, as opposed to the witchhunt. The defendant, in particular, must not be shouted down, or blocked from getting a fair hearing, even though her side of the case may be perceived as going against what are the popular enthusiasms and causes of the day. But it is one thing to say this. It is another thing to actually carry it out. With earlier witchhunts, we can, in perspective, easily see what happened, and how justice was not served. But caught up in our own enthusiasms and popular viewpoints of the time, we are blinded to how we ourselves block out certain kinds of arguments from consideration, without really giving them a fair hearing.

Taking a critical point of view on the argumentation in a trial, the arguments and various verbal moves made in the dialogue on both sides can usefully be reconstructed as contributions to a critical discussion. From such a normative perspective, the arguments used in a given case can be evaluated as plausible or implausible, strong or weak, open to critical questioning, or even fallacious in some cases, depending on the particulars of how the argument was used in that case. An appeal to expert opinion, for example, can be judged as having a certain weight of plausibility as evidence in the trial. Or it could be criticized as being weak and open to critical questioning in certain respects. So the central normative model by which to judge such arguments is that of the critical discussion. But there are numerous complications, and several key qualifications need to be made. Within the persuasion dialogue there will be peirastic and exetastic interludes in which various parties are examined, and are asked to present evidence, to explain that evidence, and to answer various kinds of questions that may probe into and challenge what they say. Such interludes involve dialectical shifts from the central persuasion dialogue to other types of dialogue. But such shifts can be quite legitimate and helpful to the success of the dialogue provided they are licit shifts that make the persuasion dialogue more informed, bringing

in important items of information like expert opinions on matters that a jury could not fathom without the help of a cooperative expert.

Another complication is that there are many legal rules of procedure that are themselves legal statutes. Such rules, especially the rules of evidence, govern the argumentation in a trial in a way that makes the evaluation of the argumentation in the trial setting quite different in many ways from the kind of argumentation one would confront in everyday nonlegal conversational dialogues. These rules quite clearly have to be taken into account. From a strictly legal perspective, these rules are binding, depending on jurisdictions, and affect many matters of how the argument should be judged. This legal system of procedural rules in a jurisdiction corresponds to what is called the speech event or institutional setting of the argument as used in a given case.

But notice that these rules themselves are subject to commentary and criticism. One can ask whether a particular rule really contributes to having a fair trial, and is helpful to the critical discussion that is supposed to take place in the trial. Or one can ask whether a rule ought to be modified or replaced. In fact, throughout this book various controversies about the pros and cons of such rules have been discussed. What should be kept uppermost in mind, in such discussions, according to the new theory of evidence advocated in this book, is how the rule at issue contributes to the quality of the persuasion dialogue that is centrally supposed to take place in the fair trial. Will a particular rule contribute to the critical discussion by bringing out arguments on one side or the other that have probative weight and are relevant to the conflict of opinions at issue in the trial? Or will it only have such a small amount of weight in the case that its worth as evidence is offset by other factors, like the cost of unduly prolonging the trial? These questions reveal that judgments about legal evidence are by no means purely theoretical, and there are always practical matters of costs and the like involved. Even so, a primary consideration is that a trial should be a fair trial in which all the strongest relevant arguments on both sides should be articulated forcefully and questioned critically. The notion of advocacy on both sides is fundamental to the success of any persuasion dialogue. All the relevant evidence should be brought to light. The normative model of the persuasion dialogue has considerable bite, despite the other factors woven into and around it in the trial.

The key concept in the evaluation of argumentation in the trial is that of relevance. Legal relevance is decided by the rules of evidence, and by a judge's application of those rules to the particular case. But the legal rules of relevance can themselves be evaluated from a logical point of view if the central thesis of this book is right. This central thesis is that legal relevance is based on dialectical relevance of the kind analyzed in Chapter 7. With respect to the argumen-

tation in a trial, dialectical relevance in persuasion dialogue is the underlying logical framework on which the science of legal reasoning should be based. Dialectical relevance is, in turn, based on the notion of plausibility or probative weight in a case. In any particular case, at any particular point in the progress of a legal trial, relevance should be judged by estimating the probative value of a given fact or assertion in relation to the ultimate conclusion at issue in a case. The underlying logical structure of any such estimation is based on the chaining forward of the particular argument or move at issue. This chaining forward is modeled by the argument diagram, which exhibits the structure of the larger body of evidence in a case, insofar as that case has proceeded.

6. ARGUMENT DIAGRAMMING

Three main kinds of argument structures are vital to understanding how to use the method of argument diagramming. In the linked argument, the premises all taken together boost up the plausibility value of the conclusion much higher than if each premise is thought of as a separate evidential basis to support the conclusion. For example, consider a case in which an expert's opinion has been cited in support of a particular conclusion. The expert, Dr.White, has testified that Mr. Black's fingerprints were on the knife. The conclusion shown is that Black had handled the knife. According to the form of the argument from expert opinion, two premises are used to support the proposition that is the conclusion. One is that Dr. White is an expert in the domain of fingerprints, and the other is that Dr. White asserted the proposition that Black's fingerprints were on the knife. Each premise, without the other, does not make the conclusion very plausible. But if you put the two premises together, the plausibility value of the conclusion goes up quite a bit. The reason is that the argument from expert opinion boosts up the plausibility of the conclusion to be proved quite a bit, through the probative function, provided both required premises show a strong plausibility of being true in the given case. But if you take one premise out, the other, by itself, does not increase the plausibility value of the conclusion by very much.

Another type of argument structure that is very important is that of the convergent argument. In a convergent argument, each premise by itself provides an independent line of evidential support for the conclusion. For example, suppose that Ms. Green is accused of murder in the case where her husband died by ingesting rat poison. Suppose the prosecution asserts both that Ms. Green bought some rat poison prior to the death of her husband, and that she stood to gain from a large insurance policy in the event of his death. Here, each

assertion, by itself, provides support for the conclusion that she murdered her husband. If you take the one premise away, the other still gives about the same amount of support for the conclusion that it did when combined with the first one. In a convergent argument, each premise acts like a separate line of support for the conclusion. It is like there are two separate arguments, and each functions independently of the other, even though, when you put them both together, of course the plausibility value of the conclusion will be increased. But in the case of a linked argument, if one premise is withdrawn, the support for the conclusion is lowered even more significantly, because an essential part of the argument is missing.

The distinction between linked and convergent arguments can be quite subtle in some cases, even though it is clear and evident in other cases. Just the plausibility-lowering test described above, by itself, is insufficient in many cases to determine whether a given argument is linked or convergent. One also has to look at the textual evidence in the given case, including the use of so-called indicator words, and evidence from the context of dialogue. The criteria for determining whether an argument in a given case is best judged to be linked or convergent are methodically set out and clarified in Walton (1996a). But even without delving into these finer points, it is not too difficult to appreciate how an argument diagram can be used as a kind of flow chart to present the inferential relationships of a whole body of evidence in a legal case. As already noted, the use of this general kind of technique has already been well illustrated in legal cases by Wigmore (1913).

The third important type of structure is that of the serial argument. In a serial argument, the conclusion of one argument functions as a premise in another argument. The two arguments are connected together in a chain. We are already familiar with this kind of structure from the concept of the chaining of arguments, first developed by Bentham, that has played so important a role in the new theory of evidence. It is this chaining of arguments that connects together the many subarguments that make up the argument diagram of an extended case.

To illustrate how the technique works, the example above can be expanded a little. Suppose the prosecution in this case brings forward a hardware store clerk who testifies that he sold a tin of rat poison to Ms. Green on a particular occasion before Green's husband died. The prosecution argues that Green bought the rat poison at that time, based on the clerk's testimony. The prosecution then argues that Green was in possession of rat poison. The prosecution also brings forward a separate line of argument with the conclusion that the rat poison was the cause of death. This conclusion is based on argument from expert opinion. The prosecution introduces a physician who is an expert on

poisoning. She testifies that the type of rat poison bought by Green is consistent with the traces found in her husband's body, and that in her opinion, it was the cause of his death. The premises in this argument are linked together, as can be easily seen in virtue of their being essential parts of the argument from expert opinion. Similarly, the argument from the testimony of the hardware store clerk is based on two premises. One is that he says he saw Green buy the rat poison. The other is that he is a reliable witness who was in a position to know about the propositions asserted. Either premise can be challenged by the defense attorney. If critical questions can be raised about either the one premise or the other, and these critical questions are not answered adequately by the prosecution, the whole argument falls down in plausibility. Hence this argument from testimony is a linked argument. But if you consider the argument from the testimony of the hardware clerk and the argument from the expert opinion of the physician, you can see how each functions as a separate line of support for the conclusion that is independent of the other. When you look at these two arguments separately as part of the larger argument diagram making up the whole body of evidence in the case, you can see that it is best to treat them as convergent.

Now let's add in the previous bit of evidence that Green stood to collect a large insurance policy on the death of her husband. In the case so far, there are three separate arguments, each of which is a linked argument. Using the following letters to stand for the premises and conclusions of these arguments, the part of the argument diagram shown in Figure 9.1 shows the three inferences.

C = The clerk asserts that Green bought the poison.
P = The clerk was in a position to know who bought the poison.
G = Green bought the poison.
E = The source is an expert.
S = The source asserts that rat poison caused the death.
R = Rat poison caused the death.
I = Green stood to collect a large insurance policy in the event of her husband's death.
M = Collecting a large amount of money provides a motive for an action.
A = Green had a motive for causing the death of her husband.

Looking at Figure 9.1, three subarguments are pictured, each one of which is a linked argument with two premises.

Each of these small arguments is relevant, in the sense that each carries some probative weight and each can be connected to the others, and to other relevant arguments in the case, so that when all these arguments are connected up to

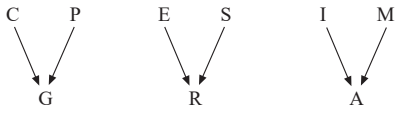


Fig. 9.1

each other the cumulative effect will be to increase the plausibility of the conclusion that Green murdered her husband. It does not take too much imagination to picture how such an evidential picture might be filled in, as the case proceeds. Certain other propositions may be brought in as evidence, for example, the propositions that Green knew where the rat poison was stored, and had easy access to it. Since it had already been established above that the rat poison was the cause of death, the conclusion could be drawn that Green had the means to cause the death of her husband. The following propositions are involved.

R = Rat poison was the cause of death.
Y = Green had easy access to the rat poison.
N = Green had the means to cause her husband's death.

In this case, the first two propositions function as premises, and the third proposition is the conclusion drawn from those premises. But now plausible inferences have been drawn about the means and the motives that Green had. These two conclusions can be put together as a basis for an argument strategy for the prosecution. These two conclusions can be used as premises in a linked argument to support the conclusion that Green murdered her husband (H). The diagram of this part of the argument is represented in figure 9.2.

The only part of the diagram in Figure 9.1 that does not yet figure in the

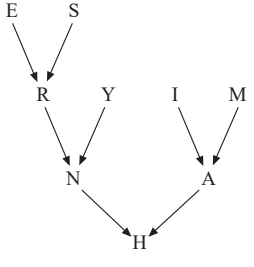


Fig. 9.2

larger diagram of Figure 9.2 is the linked inference from C and P to G. But once Green has been questioned in court about why she bought the rat poison, further conclusions may be drawn that tie this proposition in with the larger picture of the argumentation in the case, as represented by Figure 9.2. As new evidence in the case is introduced that is relevant to the evidence already there, the argument diagram will expand, and all kinds of new connections can be drawn in. The result will be a large argument diagram that represents the whole body of evidence, and the network of reasoning in the case. It will show how the evidence is connected as a body of plausible argumentation that leads to the conclusion that is to be proved by the attorney who is presenting one side of the case.

In short, it is easy to see how to construct an argument diagram representing the one side or the other of a case at trial. The whole diagram looks like a flow chart in which linked and convergent arguments are chained together as serial arguments. The argument diagramming representing the whole body of evidence in a case can look quite complex. But the main thing is that all the evidence should be represented as premises, conclusions, and arguments on the diagram, and that the final point on the diagram is the ultimate conclusion to be proved in the case. According to the method of diagramming presented in Walton (1996a), the diagram has the form of what is called in mathematics a directed graph. Simply speaking, each premise or conclusion is represented as a point (vertex), and each inference to a conclusion is represented as an arrow (edge) joining one point to another point. Each point leads to exactly one other point. However, it is possible in some cases for a sequence of arrows to start out at one point, and come back to that same point. This situation represents a case of circular reasoning.[1]

7. THE FORMAL STRUCTURE OF DIAGRAMMING

The mathematical structure of an argument diagram can be represented as a directed graph in the sense of Harary (1969). A graph may be defined as a finite nonempty set of points together with a prescribed set of unordered pairs of distinct points (Harary 1969, 9). Each pair of points is called a line (edge) of the graph, and the line is said to "join" the two points. A directed graph or digraph is a special type of graph in which the lines are ordered pairs of distinct

1. On how circular reasoning should be dealt with in argument diagrams, see Walton (1996a, 191–95).

points (10). In a digraph, the lines are drawn with an arrow indicating their directions. In the method of argument diagramming presented in Walton (1996a, chap. 6), the arrows represent single inferences and a digraph is used to represent the chain of inferences that make up the reasoning used in an argument.

Figures 9.1 and 9.2 are examples of digraphs. Another option that can be added is that numbers or other notations can be indicated on the arrows, representing information about the inference used to draw the conclusion. For example, all the forms of inference set out in Chapter 2 could be listed and numbered, so that a number represents a particular type of inference. The number 5 might stand for argument from expert opinion. Then in the inference from E and S to R in Figure 9.2 (or 9.1), the number 5 can be written beside each arrow. This notation indicates that the argument is linked, and that the form of inference is that of argument from expert opinion. The notation used here is an application of the technique of labeled deductive systems that was explained in Chapter 8, Section 3.

In general, if both or all the arrows leading to a conclusion have the same number, this notation indicates that the argument is linked. If the arrows have different numbers, the argument is convergent. So the argument diagram indicates which of the specific subarguments is of the linked type, and which of them is of the convergent type. This information is useful when it comes to critically questioning the arguments. In a linked argument, all you need to do is to critically question one premise, and the whole argument suffers a decreased plausibility value. But in a convergent argument, even if one premise is thrown open to doubt, that will not affect the plausibility of the support for the conclusion, provided the other premise or premises strongly support the conclusion.

How the argumentation in a legal case can be shown as an argument diagram that maps onto the dialogue is very well illustrated in several case studies in Lodder (1998, chap. 4). In Lodder's system, the arrows represent reasons that each party in the dialogue has for supporting its claims, and the vertices of the argument graph represent all the premises and conclusions in the sequence of argumentation. The sequence of argumentation in a case is represented by Lodder by an argument diagram that is very similar to the kind of argument diagram represented above (67). What is shown is that the argumentation in a dialogue maps onto an argument diagram that shows the reasons given by each party to support his or her claims. The argument diagram provides a kind of blow-by-blow summary of all the various reasons given by a participant to support the claims she has made, and all the objections made to the claims made by the other side.

According to Lodder (1998, 37), the argument diagram represents the sen-

tences of the dialogue pictorially. The particular format used by Lodder is that of the tree, a graph that has no cycles in it (Harary 1969, 32). Lodder (1998, 37) gives the following example.

The box at the top contains a proposition that is a conclusion or claim. The pair of boxes just below represent two reasons given to support that claim by the proponent of the claim in a dialogue. The last box represents a reason given by the proponent to support the proposition that O. J. shot the victim. Each of the three levels represents an argument move made in a dialogue. The argument diagram, or so-called dialogue tree, shows how each move represents an argument used to support the original claim. The argument diagram shows all the claims made, and it shows how each claim represents a premise and/or conclusion in the sequence of argumentation.

It is possible to use numbers to indicate the initial probative weights (plausibility values) on each proposition in an evidence diagram, and then to use methods to calculate changes in plausibility values. But the methods for calculating such weightings have not yet been fully worked out. As indicated above, there is quite a literature on this subject in artificial intelligence (Josephson and Josephson 1994), in legal reasoning (Cohen 1992), and in informal logic (Walton 1996a). Many think that some form of probability theory can solve the problem. Others have cast doubt on this claim (Allen 1986). Some of the grounds for doubt relate to the negation and conjunction rules used in the probability calculus. According to the negation rule, the probability of the negation of a proposition is calculated at one minus the probability of that proposition. If the probability of getting heads on a toss of a coin is .7, then the probability of not getting heads is .3. According to the conjunction rule, the probability of *A* and *B* both being true is the probability of *A* times the probability of *B*. Allen (1986, 405) has shown, in civil cases, why both these rules do not apply to legal argumentation. But it is beyond the scope of this book to delve into these detailed

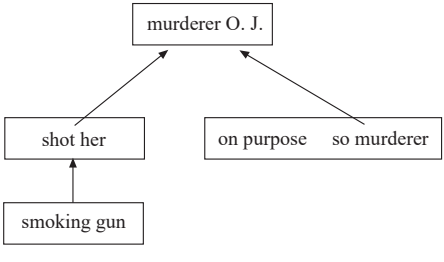


Fig. 9.3 Dialogue tree example

arguments, pro and con. Suffice it to say that the new dialectical method of evaluating legal argumentation goes in a different direction from probability theory. What is important is the burden of proof for a given dialectical setting of argumentation use, and how that burden is fulfilled or not by a mass of connected evidence.

8. FORMALIZING THE NEW SYSTEM

How the new system needs to work is that you have basically the same kind of system of dialogues set up in Walton and Krabbe (1995), except for the addition of agents to the system. The rules, the commitment stores, and so forth are the same, except that the two participants, the proponent and the respondent, are defined as agents. What this amounts to is that, in addition to the commitment store attached to each participant, there will also be a set of character attributes attached to each agent. This set of attributes is contained in a character store, or character repository, representing all the character attributes known to be attributable to that agent. As the dialogue proceeds, the attributes in the character store can be changed, and additions and deletions to it are carried out, depending on the moves made in the dialogue. The attributes come into play only if character is relevant. Otherwise they are not taken into consideration in judging the argumentation in the dialogue. Judging arguments is sometimes partly a matter of using the credibility function. The credibility function takes input from the character of the proponent of the given argument, depending on what is known, or thought to be true about an agent's character, at any given point in the sequence of a dialogue.

Another aspect of the new system of dialogue for legal argumentation that is very important is the chaining forward and backward of inferences. At any given point in a dialogue, the question of whether a given move made at that point is relevant or not is basically judged by performing a chaining forward of the given argument from that point to see whether the projected sequence hits the ultimate proposition to be proved. As noted, in any real legal case, such a test is based on guesswork. Basically, it is based on the experience and judgment of the judge, as tailored to the specifics of the case, and the rules of evidence as applied to the case. But the logical structure behind this kind of guessing or judging is that of the chaining of argumentation, as represented by the argument diagram. Thus in the technical structure of the logical dialogue game, the linking together of the chain of reasoning into an argument diagram is ex-

tremely important. Many technical considerations on how to study the formal structure of such argument chains in a given case in a dialogue have already been set out in Walton and Krabbe (1995), and there is no need to repeat these technical details here. But what is important to realize is that the argument diagram is vitally important in determining what is relevant or not in a given case. And so, in the formal structure of representing the argumentation in any legal case, the chaining forward of the argument from a given point is fundamental.

The system is rather elaborate, and requires a number of components. But how it all works can be illustrated by outlining the kind of case that is commonly encountered. Let's say two agents are engaging in argumentation of some sort. The proponent accuses the respondent of having committed himself to an inconsistency of the sort that shows "he does not practice what he preaches," and that therefore he has a bad character of the sort that should lead us to conclude that his argument is implausible. In the given case, the respondent may reply to this argument, or may not. In any event, what we have to do to evaluate the argument is to reconstruct the *ad hominem* argument in light of the form of inference for this type of argument. We have to ask if the actual argument used in the given case meets up with the requirements for the form of inference for the circumstantial *ad hominem* type of argument or not. If it falls short, we need to pinpoint the particular requirements that are not met in the given case. At the same time, we have to map out the sequence of dialogue in the given case, and match it up against the normative model of dialogue representing the kind of conversational exchange the two parties were supposedly engaged in. If it was a persuasion dialogue, we have to ask what the issue supposedly was. This framework of dialogue provides the information we need to judge whether the argument was relevant, whether character should be an issue, and so forth. Every case needs to be evaluated in fundamentally the same way, using the same structure, even though the details of each case will be different.

The fundamental skills needed for the evaluation of each case are the same. First, the argument reconstruction needs to be carried out, in the form of an argument diagram. Then that argument, once identified, needs to be evaluated in the context of dialogue in which it was supposedly used for some conversational purpose, as far as can be determined from the information given in the text and context of discourse in the given case. Judgments of relevance are contextual, but are vitally important in matters of legal evidence, especially where credibility of a witness is so centrally important for evaluating evidence of the kind that comes into the trial.

Applying this kind of structure to a case will not tell you how a jury will

react to the case. That depends on many factors, like the visual appearance of the defendant, the witnesses, and the other participants in the trial. Applying this kind of structure has more of a logical function that helps to organize the argumentation in the case by showing which arguments go where in the case, which arguments have weak links or admit of critical questions that were not answered, which subarguments are part of larger chains of argumentation leading somewhere in the case, how or whether an argument is relevant, and things of that kind. What it gives you is a rational reconstruction of an argument, showing its place in the context of dialogue in a given case. The structure then has a logical, as opposed to a psychological, function. It gives you an organized basis for evaluating the argument in context, displaying its inferential connections and weak points, and thereby giving you a reasonable basis for evaluating the plausibility of the argument as used in a context for some purpose.

Of course, such an analysis of an argument could have rhetorical as well as logical uses. It could help you to organize the evidence in a case, or to work out a coherent strategy for persuading a judge or jury. Within limits, an argument that appears to be more reasonable, basically because it is more reasonable, is much more likely to be more persuasive. But it depends on how reasonable the judge or jury is, and on many other factors, like self-interest, or biases of various sorts, that may be present. Too heavy an employment of logical structure in presenting a case could be just as bad a fault as presenting a case that is disorganized or illogical. The bottom line, however, is that the kind of logical structure presented here is generally a good format for organizing a strategy for presenting the evidence in a case, or for attacking the presentation of that evidence. The assumption is that people are generally more likely to be persuaded by argumentation that appears to them to be logical. In a trial, there is a mass of evidence on both sides, and the balance could tilt one way or the other. Connecting that mass of evidence on your side into a coherent network of reasoning that has a structure and over-all direction, could be the difference between winning and losing.

The new method has its place. Other factors, like collecting the evidence, presenting it in a visually forceful way, and so forth, may be most important to persuading a jury. But presenting a case that makes sense logically to a jury could also turn out to be significant in many cases. Anyway, our purpose here is not the psychological or rhetorical one of how to persuade a judge or jury, by any possible means that might work to win a verdict. Our purpose has been that of seeing how to reconstruct the argumentation in a case to evaluate how strong or weak an argument should be judged logically to be, in order to fulfill the purpose it was supposedly designed to fulfill. This task is to judge how

plausible the argument should be taken to be, assuming it is supposed to persuade a respondent who is rational in the sense of being a collaborative participant in the type of dialogue that the two parties are supposedly engaged in.

9. THE SUBTLETIES OF PEIRASTIC DIALOGUE

One of the novelties of this book has been the introduction of the ancient idea of peirastic dialogue, and its companion idea of exetastic dialogue, into the framework for evaluating legal discourse. It has been novel enough to introduce the six main types of dialogue as models for the evaluation and analysis of legal argumentation. But peirastic dialogue introduces further complications, because it typically involves a mixture of explanation and argument.

It is peirastic dialogue in particular that throws new light on the concept of legal evidence. Legal evidence, as so often observed in this book, is heavily based on argumentation from testimony. Many of the current problems with legal evidence stem from the logical difficulties in the use of expert testimony. But what is expert testimony as a type of argumentation, and how is it best evaluated in particular cases where so much seems to swing on it in a trial? It is in answering these questions that the concepts of the peirastic and exetastic dialogues must be brought to bear. Expert testimony, in particular, is very complicated from a logical point of view, because it not only combines persuasion dialogue with information-seeking dialogue, it also combines the speech acts of argument and explanation. The technique most needed to evaluate this type of dialogue is the profile of dialogue, combining different types of why-questions and other types of questions with their matching replies and answers in the sequence of dialogue. Such profiles of dialogue need to be studied very carefully, to judge whether and how the replies match, or fail to match the questions, within the sequence of dialogue in the given case. Here logic needs to be expanded to take into account not just inference from premises to conclusions, but longer sequences of dialogue that need to be analyzed dialectically. How explanations are interwoven with arguments is a subject already dealt with at length in expert systems technology, where the use of abductive reasoning is taken into account as a vital part of the use of expert reasoning. This same kind of interweaving of argument and explanation needs to become part of the logical framework used in the dialectical examination of evidence in the trial context. Examination needs to be seen as a type of dialogue that has a dialectical structure within which arguments and explanations can be evaluated logically. In the fair trial, the purpose of examination is to provide the information on which the rational persuasion in the critical discussion in the trial can be based,

so that we can have an informed critical discussion in which the relevant arguments really probe into the issue deeply. The information-seeking dialogue needs to be joined to the critical discussion in a constructive and helpful way, to make the critical discussion more informed. The peirastic dialogue as a structure is really the fundamental logical basis of the concept of legal evidence.

When an attorney examines a witness in court, can the type of dialogue be classified as peirastic dialogue? This question is very controversial and new. There is one aspect of it that lawyers tend to be very skeptical about. The argument behind this skepticism runs as follows. Peirastic dialogue is species of information-seeking dialogue. But how can you view examination in a court setting as information-seeking? In fact, this type of dialogue, particularly in the case of cross-examination, is highly persuasive. The attorney is not just trying to extract neutral information from the witness she questions. She is trying to extract the information that supports her side of the case. Her goal is to try to win the case for her client. She is trying to extract only responses that will persuade the trier that her side has the stronger argument. Therefore, runs the skeptical objection, it is naïve to classify examination as a species of information-seeking dialogue.

The reply to this skeptical objection requires quite a careful analysis of examination dialogue. It is much more of a lengthy project than can be attempted here. The best that can be done is to sketch out the form such a reply should take. Several key points need to be basic premises of the reply. The first point to be made is that peirastic dialogue is not simply or purely information-seeking dialogue. It is a kind of information-seeking that includes a testing aspect. In peirastic dialogue, information is sought by the questioner. But another aspect of peirastic dialogue is the testing function. In an examination of a witness in court, the questioning attorney wants not only to extract information, but also to test out the plausibility of that information, so that the trier can have reasons to accept or reject it as real (true) information about the facts of a case. We have already seen, in Chapter 1, how the examiner performs this testing function by asking probing questions. Sometimes these questions catch the witness in a contradiction, or use other methods of argumentation to raise doubts about the credibility of the witness.

The next point is that there is a theory that has been advanced to model the argumentation in use when an examiner uses critical questioning to probe into the so-called "story" or account presented by a witness. The story, in order to be plausible, needs to hang together and be coherent. If inferences can be drawn from the story, showing that parts of it appear to be in conflict with known facts, or that parts of it contradict other parts, such findings will throw the plausibility of the story into doubt. How this probing into the story given

by a witness works is explained by the theory of anchored narratives that has been presented by Wagenaar, van Koppen, and Crombag (1993). According to their theory, the narrative or story given by a witness must not only be a coherent narrative that is free of contradictions. It must also be based on what are taken to be the facts of the case. For example, suppose the account given by a witness is based on a premise that can be shown to be highly implausible by a separate line of evidence—for example, scientific evidence like DNA evidence. This failure to be properly anchored will also count against the plausibility of the story. The point to be made here is that the theory of anchored narratives can explain how witness testimony is tested out as plausible or implausible through a dialectical process of questioning.

The next point that needs to be made is that lawyers tend to see witness examination dialogue as adversarial, and more like persuasion dialogue than information-seeking dialogue, because of their role as advocates. Of course it is right that the attorney is the agent of her client, and her job is to win the case for the client. Therefore, her role in the examination of a witness is adversarial in nature. But when considering the type of dialogue involved in legal argumentation in the trial process, what is important is not just the goal of any individual participant, but the goal of the dialogue as a whole. Instead of looking at the examination of a witness from the attorney's point of view, look at it from the judge's point of view—or, even better, look at it from the point of view of the trial as a goal-directed procedure. What is needed for a fair trial is that the information about the true and relevant facts of the case should come out. Indeed, the purpose of the adversarial system is that the trier can critically examine the strong argumentation deployed by both sides, and then arrive at a decision. The decision should be based not only on drawing the right inferences by logical reasoning, but also on learning and then remembering the facts of the case, as revealed in court. In other words, from the viewpoint of the trial, and the fact-finding part of its purpose as a dialogue, it is vital that information should come into the court through the examination of witnesses. From this viewpoint, it is appropriate to view the examination of witnesses in a trial as being a species of information-seeking dialogue. It must be emphasized again, however, that examination is not a pure information-seeking dialogue. It is a peirastic dialogue in which the information is tested out by questioning, so that it can be judged to be plausible or implausible.

10. THE CURRENT PROBLEMS WITH RELEVANCE

The current problem with relevance in the Anglo-American legal system is posed by the expansion of the negative rulings that restrict relevance in what

appears to many to be an artificial and restrictive way. What is perceived over and over again by the general public, in observing legal trials, is that evidence that is logically relevant to what is at issue in the trial is struck down as "irrelevant" or inadmissible. To the ordinary citizen, such a trial looks "cockeyed" or illogical. What obviously is relevant, and highly materially relevant from an ordinary nonlegal point of view, is excluded from the evidence that can be admitted and considered in the trial. Such exclusions are justified not on a basis of logic, or getting at the truth of the matter, but on a basis of what is taken to be justice, or protecting people's rights. But to an ordinary citizen, such trials look weird, and indeed the common perception of them is that they are illogical.

A typical case of the kind that illustrates the current problem with relevance comes from the field of employment discrimination litigation. Many companies do not put up a fight against sexual harassment suits because going to court is costly and generates bad publicity. Consequently, some complainants have found it very profitable to sue one employer after another, amassing a series of large settlements (Kaufman 1998, 47):

> Chronic complainants know that unless they overreach, their litigation-filled pasts will almost never come out at trial. Courts usually ban such information, fearing that it will unfairly prejudice juries. As a result, defense lawyers are straitjacketed even when they know they are dealing with a professional suit-filer. (A lawyer) recently defended the head of a large Los Angeles apparel firm against charges of sexual harassment. A background check of his accuser revealed that she had made the same charges against both her previous employers. In addition, she had been keeping a detailed diary of events in the office from her first day on the job, as if she had planned to sue from the start. None of it was admissible in court, so the CEO decided to settle for a six-figure sum rather than face a long, embarrassing jury trial.

This kind of case is at the heart of the current problem with relevance. Abusers can exploit the legal system because they know that certain kinds of facts about their personal situation and past actions will not be admitted as evidence in a trial. Such evidence is logically relevant—very much so—but it is not considered legally relevant because of the exclusionary rules of evidence. The grounds cited in this case and many other comparable ones are that such considerations, if admitted into a trial, would tend to prejudice the jury. Of course, from a perspective outside the rules of evidence, the trial looks distorted and biased, even illogical, because the jury only sees part of the whole picture, and it is a

picture that is slanted one way. Would knowledge of such facts about the accuser's past actions really "prejudice" the jury? Or would it be better to allow the jury to make up their own minds, and to make their own decisions on what to think based on all the relevant evidence? From a logical point of view, the restrictions on relevance in the FRE seem absurd. But then we have to recall that the purpose of the FRE is not just the pursuit of the truth of the matter, but there is also a goal of fairness that includes the protecting of the participants' rights.

Of course, Bentham would have said that none of these artificial restrictions on relevance should have been introduced in the first place, and that anything that is logically relevant should be admissible. One of Bentham's main theses concerned the subject of exclusions, that is, what kinds of evidence should be excluded as irrelevant in a trial. One of Bentham's main theses was the nonexclusion principle to the effect that no evidence should be excluded "unless its production would involve preponderant vexation, expense or delay" (Twining 1985, 28). Even more generally, Bentham's approach to evidence was against rules, that is, Bentham argued that rules of evidence of the kind he identified with technical systems of law should be replaced by a natural system of procedure. Bentham's natural system of evidence was meant to be a plea for return to simplicity, common sense, and reason of the kind used in everyday, practical argumentation. But current law has gone so far in the other direction, it is not likely at this point that anyone taking part in the legal system would take Bentham's position very seriously. Still, Bentham had a point that is worth remembering. If we go too far toward building brick walls around the free and natural notion of dialectical relevance as applied to rules of evidence used in trials, the argumentation used in existing trials will appear more and more absurd and unnatural to juries, and to observers of these trials who are not legal professionals. Surely this problem is at the very heart of the widespread current conception that the Anglo-American law of evidence is adrift, and that the legal system is derailed, producing more and more decisions in trials that the public perceives as illogical and absurd, from a common sense point of view. Perhaps the problem is that the rules of evidence have proliferated so much, and become so complicated, that the constraints of the particular case have been lost sight of. There needs to be more latitude in looking at the individual case on its merits, instead of trying to regulate all matters of life with rules that have proliferated so much that they conflict with each other, and are impossible and even pointless to try to enforce. In other words, what judges and juries need to use, and to promote, is a kind of critical thinking. Arguments need to be seen as having a presumptive standing as plausible, but as subject to critical questioning. Legal argumentation needs to be seen as dialectical.

One other comment on this kind of case is worth including. The ruling of the FRE indicates that the framers of the rules of evidence worried about the possibility that the jury could be prejudiced by certain kinds of arguments. The assumption must be that, although the members of the jury need to be critical thinkers, they must also be seen as having limits to their critical thinking ability. The point is very interesting to comment on, because it raises some issues about jury deliberations. The whole framework of the trial as a method of dispute resolution rests on several key assumptions about argumentation that have been explored in this book. The advocates on both sides are supposed to bring forward strong and probing arguments. These arguments in the persuasion dialogue on both sides should be based on premises that convey information about the supposed facts of the case. The trier is supposed to use critical thinking and common sense reasoning to analyze and evaluate the worth of the arguments on both sides. It is required that the jury should be critical thinkers, in order for the whole process to work, presumably by getting toward the truth of a matter. But that is not the whole story of how a trial should work. There also should be some limits on what information is allowed in. There can be various ways of justifying the imposition of such limits. Factors of time and expense can outweigh the utility of protracting the trial with dubiously relevant testimony that would drag on, impacting negatively on the ability of the jury to perform its task effectively. One such justification is that the slight probative value of such testimony might be outweighed by its tendency to prejudice the jury. Testimony that would drag on, impacting negatively on the ability of the jury to perform its task effectively, could have a tendency to prejudice the jury.

This kind of case illustrates the limits of logic on bearing on actual rulings by a court. From a viewpoint of the new dialectical theory of relevance, these facts about the previous court cases and the diary of the filer of the suit against the apparel firm, are dialectically relevant. They have probative weight in showing a trier important facts that relate to the motives of the woman who filed the suit. Following the FRE however, they would be inadmissible in the case. The ultimate justification of this kind of ruling traces back to how the FRE rules on relevance. If something would tend to prejudice a jury, it can be ruled irrelevant if it only has a slight probative weight. At any rate, as the case cited by Kaufman indicates, the information about the past actions of the woman was not held to be admissible. But if you look at the case purely in terms of logical relevance, you can argue with some plausibility that the information is relevant. What is shown is that logical relevance is only one ingredient in legal relevance. Looking at all the relevant evidence on both sides of a case is only one of the goals of argumentation in a trial. The courts have other goals as well, including justice or fairness. What is shown here is that logical relevance is one consider-

ation in legal evidence. But there are other considerations that can overrule logical relevance.

This book proposes the dialectical method of analysis and evaluation of legal argumentation, based on the eight components listed above. In the new dialectical method, each case needs to be judged on its individual merits. The application of the eight components gives a logical method for analyzing and evaluating the argumentation used in any given case from the viewpoint of the context of dialogue appropriate for the case. The new dialectical method can evaluate the relevance of a line of argumentation in a legal case, for example. But as noted above, what is evaluated is a kind of logical relevance. Logical relevance is only one factor in examining any particular case. Many other specific factors will determine how a court might actually rule in any given case. What the dialectical theory gives is a new approach to legal logic. In this new approach, logic is seen as a context-sensitive tool for analysis and evaluation. This new method calls for sweeping revisions to the field of logic itself. The whole branch of logic called informal fallacies needs to be rethought, and the common kinds of arguments associated with fallacies need to be judged and analyzed in the dialectical framework sketched out above, as opposed to the traditional frameworks of deductive and inductive logic. This field of fallacy study is very much applicable to legal argumentation, and there is much work to be done in this area. Not only the use of character in *ad hominem* argumentation, but the whole topic of relevance, and many other traditional kinds of fallacies as well, need to be studied as used in legal cases in trials. Expert testimony is a whole area where much more work of a logical nature needs to be done. The dialectical evaluation of the appeal to expert opinion as a type of argument is one whole area needing attention.

Critical thinking textbooks of the kind used in the undergraduate curricula in universities already use legal examples, and some law schools already realize that skills of argumentation and logical reasoning are central to the methodology of law as a discipline. But where I think an improvement can be made is in the closer joining together of the teaching of logic in these two curricula. Critical thinking textbooks could use more legal examples, and for this purpose, a data base of interesting legal cases illustrating problems of argument evaluation needs to be built up. Students are often initially inclined to dismiss fallacies as trivial errors. But legal case studies can show that fallacies and other logical difficulties really are quite important in legal cases where a lot of money is at stake. The one side of the problem is that presently, law schools do not put a priority on logic. The other side is that university courses on critical thinking can't afford to specialize too much on cases and examples that are mainly of interest to pre-law students. Somehow this gap needs to filled by finding the

right balance in how logic is taught. The materials are there for solving the problem, but it will require research on fallacies and legal reasoning, as well as improving how these matters are taught. Rodes and Pospesel (1997) made one big step toward these goals, but my argument is that extending their chapter on the pragmatics of disputation in the direction indicated is another required step if legal practitioners are to be convinced that logic can be centrally useful to them.

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INDEX

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