NONFALLACIOUS ARGUMENTS FROM IGNORANCE

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THE argument from ignorance has traditionally been classified as a fallacy, but there is growing recognition that this kind of argument can be nonfallacious in some cases. This raises a question: what kind of successful or good argument is it, in these cases? In this paper two argumentation schemes to represent the form of the *argumentum ad ignorantiam* are introduced. It is argued that they are best judged as fallacious or not in a particular case, in relation to a context of use in dialogue.

I. FOUR CASES

The fallacy of the argument from ignorance *(argumentum ad ignorantiam),* according to Copi and Cohen (1990, p. 93) is "the mistake that is committed whenever it is argued that a proposition is true simply on the basis that it has not been proved false, or that it is false because it has not been proved true." But is this kind of argument a fallacy? It has been argued in Woods and Walton (1978) that it is, generally, even though there are some cases where it is not.

Copi and Cohen (p. 94) provide an example that suggest that, at least in some cases, it is not.

Case 1: In some circumstances, of course, the fact that certain evidence or results have not been got, after they have been actively sought in ways calculated to reveal them, may have substantial argumentative force. New drugs being tested for safety, for example, are commonly given to mice or other rodents for prolonged periods; the absence of any toxic effect upon the rodents is taken to be evidence (although not

conclusive evidence) that the drug is probably not toxic to humans. Consumer protection often relies upon evidence of this kind. In circumstances like these we rely not on ignorance but upon our knowledge, or conviction, that if the result we are concerned about were likely to arise, it would have arisen in some of the test cases. This use of the inability to prove something true supposes that investigators are highly skilled, and that they very probably would have uncovered the evidence sought had it been possible to do so.

But if the argument from ignorance is nonfallacious in this case, what kind of argument is it? What species of correct (good, reasonable) argument is it?

In some cases, the *argumentum ad ignorantiam* is a correct (nonfallacious) argument because we can rightly assume that our knowledge base is complete. If some proposition is not known to be in it, we can infer that this proposition must be false.

Case 2: The posted train schedule says that train 12 to Amsterdam stops at Haarlem and Amsterdam Central Station.

We want to determine whether the train stops at Schipol. We can reason as follows: since the schedule did not indicate that the train stops at Schipol, we can infer that it does not stop at Schipol. In other words, we can presume that the knowledge base is complete (epistemically closed) on the ground that if there were additional stops, they would be specified on the schedule posted. Perhaps we could even know that this knowledge base is complete, by knowing that the railway policy is to be sure that if the train

stops at a particular station, the name of that station is always marked on the posted schedule. The basic principle at work here is what de Cornulier (1988, p. 182) calls *epistemic closure,* the principle, "If it were true, I would know it."

> *Epistemic Closure.* If one knows that it cannot be the case that *A* without his knowing it, then, if not -*A*, he can infer that not -*A*.

The example de Cornulier gives (p.182) is the following: "If it were raining, I would know it; now, it is not the case that I know that it is raining; therefore, it is not raining." This principle of inference is rightly called epistemic closure because once a knowledge base is definitely closed, then if a proposition does not appear in it, we can conclude that this proposition is false.

It is a kind of inference that takes the form of an epistemic counterfactual: if *A* were true, it would be in my knowledge base; but *A* is not in my knowledge base; therefore *A* is false. It is an *ad ignorantiam* argument but, apparently a principle of epistemic reasoning that could be quite correct and reasonable in many cases of everyday argumentation.

In other cases, however, the *argumentum ad ignorantiam* can be a fallacy precisely because the knowledge base is incomplete in a relevant respect.

> Case 3: According to Benoit (1990, p. 25), some of Aristotle's works on rhetoric-e.g. the *Synagoge Technon,* the *Gryllus* and the *Theodecta*-are not extant: "Hence, the absence of a topic from the surviving corpus .... is insufficient evidence that [Aristotle] failed to discuss it."

In this case, our list of the topics that Aristotle wrote on, in the subject of rhetoric, is incomplete. Hence, as Benoit warns, it would be an erroneous inference to conclude that Aristotle failed to discuss a topic, simply on the basis of the absence of a discussion of that topic in his known writings.

In still other cases, however, our knowledge base may be incomplete in a relevant respect, but we can still argue non-fallaciously from ignorance, on the basis of intelligent guesswork. In the following case from Collins, Aiello, Warnock and Miller (1975, p. 398), a computer program called SCHOLAR is asked whether rubber is a product of Guyana.

> Case 4: SCHOLAR does not have any specific item of knowledge saying that Guyana produces rubber or not. However, SCHOLAR does know that Peru and Colombia are the major rubber producers in South America. And SCHOLAR also knows that rubber is an important product, so if Guyana did produce rubber, SCHOLAR would presumably know it. SCHOLAR concludes: "I know enough that I am inclined to believe that rubber is not an agricultural product of Guyana" (p.398).

In this case, SCHOLAR's nonfallacious *argumentum ad ignorantiam is* warranted by an epistemic counterfactual; if this proposition were true, I would know it. SCHOLAR argues from ignorance nonfallaciously: I do not know that this proposition is true; therefore, it is false.

In a case like this, absence of knowledge is significant because of a presumption that if a particular proposition were true, it would be known to be true. But it is a kind of shaky reasoning or guesswork. It would be incorrect to say that you *know* the proposition in question to be false (beyond doubt). Rather, you can say it is a reasonable presumption to infer, based on what you know.

II. PRESUMPTIVE REASONING

It would seem that in case 4, and case 1 as well, the argument from ignorance involves a kind of practical reasoning, of the type analyzed in Walton (1990), that goes forward in argument as licensing a tentatively reasonable conclusion, acceptable on a basis of burden of proof. It may be useful to go ahead and licence the drug in question, in case 1, for example, on the grounds that it can save lives or help in medical treatment, provided there is no evidence, that has yet arisen, to show that it is harmful to humans.

Whatever kind of reasoning this is, it is clear that it is a species of *nonmonotonic reasoning,* subject to default in the sense that if new evidence should come into consideration, in the future, that shows the conclu-

sion to be false, it must be given up. In other words, this kind of reasoning licences an arguer to accept a proposition as true (or false) provisionally, subject conditionally to future evidence that may arise in the future investigations or argumentation-see Reiter (1987). It is a kind of presumptive reasoning that can be correct (or at least not incorrect) in some cases.

In case 1, the basis of the reasoning is the presumption that the investigators would have been likely to turn up some evidence of toxicity, if it existed, because they are skilled, and because they have done some thorough or serious investigations already. This is an expectation, an initial presumption that, in the context, allows the drawing of a presumptive conclusion of safety that in turn licenses a policy or prudent course of action, in the circumstances.

Presumption is a speech act halfway between assertion and (mere) assumption or supposition in argument. The key thing about presumption as a speech act in a context of dialogue is that it reverses the initial burden of proof. In the case above, initially the burden of proof was on the side advocating the use of the drug for treatment of human subjects, on grounds of safety, or danger to human life. Given the presumptions raised by the current level of testing and investigation of the effects of the drug, however, the argument from ignorance licences the drawing of the presumptive conclusion by reversal of this burden. Anyone who claims that the drug is too dangerous or toxic to be used on humans is now obliged to step forward and present some new evidence to this effect. Otherwise the presumptive inference (argument from ignorance) goes ahead.

How presumptive argument can be reasonable in some cases as a species of non-monotonic reasoning is best analyzed pragmatically by understanding how the following sequence of speech acts is used to shift a burden of proof in a dialogue exchange between speech partners. There are nine speech act conditions.

1. There is a context of dialogue, e.g. a critical discussion or scientific investigation, involving two arguers or sides, called the "proponent" and the "respondent."

2. A particular proposition A would be a useful assumption to help the argumentation in the dialogue move forward.

3. The proponent brings A forward explicitly for acceptance, or his argument implicitly brings it forward, ie., as a non-explicit premise.

4. The respondent has an opportunity to reject A.

5. If the respondent fails to reject A, then A becomes a commitment or concession of both parties.

6. If later, the respondent wishes to retract A as a commitment, she can do so by bringing forward evidence against A.

7. Once having accepted A, the respondent is obliged to let A stay in place provisionally, for the purpose of continuing the dialogue.

8. Prior to the respondent's acceptance of A, the burden is on the proponent to provide evidence in favor of A, or practical reasons for accepting A provisionally.

9. After the respondent's acceptance of A, the burden is on her to give evidence, or sufficient reasons to dislodge A as an acceptable commitment.

This analysis of presumption clearly itself presumes the existence of a dialectical framework for the evaluation of arguments where two parties "reason together." But such a framework is given in the outline of formal dialectic presented by Hamblin (1970, chapter 8), and in more recent works like van Eemeren and Grootendorst (1984).

III. CONTEXTS OF DIALOGUE

One context of dialogue is that of the inquiry, where the goal is to prove that a particular proposition is true (or false), or that it cannot be proved true (or false) by evidence based on premises known to be true. The inquiry has a particular burden or standard of proof that has to be met for a conclusion to be proved. Once that standard is met, the inquiry is closed, and the burden of disproof is cast onto anyone who would raise questions to challenge or re-open the inquiry.

In case 1 for example, once a new drug has

been tested thoroughly enough to meet a standard considered sufficient for human safety, a decision may be made to go ahead and licence the drug for use. The inquiry is, at least provisionally, closed. But should new evidence come in from users of the drug that raise serious questions about its safety, the inquiry may be re-opened.

Another context of dialogue is that of the *critical discussion,* where the goal is to resolve a conflict of opinions by rational argumentation. The goal of each participant is to prove his thesis is right, using arguments based on premises that are accepted by the other side. The thesis of this party is a proposition that conflicts with, or is opposed to, the point of view of the other party in the discussion.

Case 3, for example, could be in the context of a critical discussion of whether Aristotle discussed a particular topic in rhetoric. However, both parties might accept that Aristotle wrote some works on rhetoric that are not extant. Suppose one of the parties in the discussion were to try to use the argument that Aristotle failed to discuss a particular topic on the grounds that she could not find this topic in the writings of Aristotle that she analyzed. The other party could reject this argument from ignorance, with justification, given that there is prior agreement, or agreement can be presumed to be reachable, on the historical finding that Aristotle may have written works on rhetoric that are not extant.

Presumably, such a historical finding would be relevant to the critical discussion because it is the result of a prior inquiry that has been widely accepted, and that the participants would not be prepared to dispute (in the context of their present discussion). In such a case, we could say that the critical discussion is functionally related to an inquiry in such a way that certain results of the inquiry can be taken as agreed-upon knowlege for the purpose of the critical discussion. Van Eemeren and Grootendorst (1984, pp. 167-168) call this aspect of a critical discussion an *intersubjective testing procedure* (ITP) where sources of knowledge (like an encyclopedia or dictionary) can be introduced into the critical discussion to provide information or knowledge acceptable to both participants. An ITP can function to tilt burden of proof in a critical discussion to one side or the other.

Whether the *argumentum ad ignorantiam* is fallacious or not, in a given case, can be seen then as depending on how it was used in the context of dialogue for that particular case. Such standards of correctness depend on an allocation of burden of proof, telling us what constitutes a successful proof for that type of dialogue in the given case. So conceived, the *argumentum ad ignorantiam* can be nonfallacious in some cases, and its being judged as correct in such cases depends on pragmatic standards of correctness of use of an argument in a context of dialogue.

IV A REASONABLE KIND OF ARGUMENT

It seems fair to conclude that the argument from ignorance is, in some cases, a reasonable kind of argument, and not necessarily fallacious. It is an epistemic type of argument, but in many cases the conclusion one is warranted to infer is not a knowledge claim. Instead, it is a defeasible (default) conclusion based on a sequence of presumptive reasoning. The premises in this sequence of reasoning are not known to be true (or false), but are presumed to be true (or false) on the basis of what one would normally expect the reasoner to know, given the depth of his, her or its knowledge base, and other circumstances of the case. And, indeed, if we can accept the above analysis of presumptive reasoning as a legitimate kind of argument, used in a context of dialogue, it is possible to see how the argument from ignorance works as a species of correct argument. "Correct" here means a kind of argument that is used properly to fulfil requirements of burden of proof in a context of dialogue.

The argument goes forward tentatively on a practical basis, advocated by a proponent, subject to refutation by evidence that can be introduced by a respondent in dialogue. This kind of presumptive reasoning is best seen not as a competitor or usurper to knowledge-based reasoning, but as a useful temporary alternative, in cases where existing knowledge is not completely sufficient to resolve a practical conflict requiring an action or opinion.

V WHAT COUNTS AS AN ARGUMENT FROM IGNORANCE?

There is a question about what counts as an argument from ignorance. For typically, in these cases-especially in case 2-there is some existing knowledge, so the argument is not, at least completely, an argument from ignorance. Also, a negative result, finding that something did not happen, is often described as knowledge. Again, especially in case 2, the absence of a proposition could be described as a kind of knowledge that it is false. As Copi and Cohen put it, in case 1: "In circumstances like these we rely not on ignorance, but upon our knowledge, or conviction, that if the result we are concerned about were likely to arise, it would have arisen in some of the test cases." Even if such a negative finding can be properly described a kind of knowledge, in some cases, it can still be justified to classify the argument as an *argumentum ad ignorantiam* in a broad spectrum of cases in everyday argumentation, because it is based on presumption or "conviction" that goes forward in the absence of complete knowledge. Where epistemic closure is insufficient to warrant a conclusion as "known to be true," it is often practically useful and correct to draw a presumptive conclusion, not by closure but by default. It is not an argument from total ignorance, but an argument from partial ignorance, where the existing or available knowledge is insufficient to resolve the practical problem, or settle the issue beyond continuing doubts.

Using the expression *argumentum ad ignorantiam* as a name for a type of fallacy is therefore somewhat misleading. Such arguments are not fallacious simply because they are based on ignorance. A more balanced viewpoint is that they are typically based on partial ignorance. Generally they are presumptive arguments that can be used correctly and appropriately in some cases, yet can be misused in a variety of ways in other cases. However, in some cases, like case 2, they are negative epistemic arguments based on knowledge that a particular proposition is *not* in a given knowledge base.

Ignorance comes into it because the cases of presumptive inference are characteristically based on ignorance (and hence are species of arguments from ignorance) in two ways. First, they tend to be appropriately used in a kind of case where knowledge-based reasoning (hard evidence) cannot get enough of a grip, or is not available within the practical constraints needed to resolve a problem or take prudent action. Second, they involve a negative type of reasoning based on exclusion.

VI. THE NEGATIVE LOGIC OF ARGUMENTUM AD IGNORANTIAM

Both the epistemic cases and the cases of inconclusive presumptive reasoning characteristically have a "negative logic," as used in argumentation. The argument has the form: A is not proven true (false), therefore A may be presumed to be false (true). This "flip flop" type of reasoning is, as shown above, characteristic of how presumptive reasoning functions in a context of dialogue by reversing the roles (probative obligations) of the proponent and respondent.

Because of this negative logic, it is still worthwhile to preserve the name *argumentum ad ignorantiam* in the logic textbooks as a distinctive type of potentially erroneous or fallacious argument to be on the lookout for, because of its potential for misuse as a fallacy. It is a distinctive type of argument that can be used appropriately (correctly) in a context of dialogue, in some cases, and inappropriately (incorrectly) in other cases.

The argument from ignorance is not exclusively an inconclusive type of presumptive argument, nor is it generally equivalent to presumptive reasoning as a type of argumentation. For it is also used in knowledge-based (epistemic) reasoning. To the extent we know a knowledge-based K is closed, i.e. complete, in the sense of containing all the relevant information, we can infer that if a proposition A is not in it, then A is false. This argumentation scheme for the *argumentum ad ignorantiam* has the following form.

All the true propositions in domain D of knowledge are contained in K.

A is in D.

A is not in K.

For all A in D, A is either true or false.

Therefore, A is false.

This form of inference is deductively valid. To the extent that it can be established (and not merely presumed or assumed) that *K* is closed, we can conclude on the basis of what is known (and not just on the basis of presumption) that *A* is false. Hence, in such cases (rare though they may be, in actual practice), the *argumentum ad ignorantiam* is not a merely presumptive type of argumentation, in the sense of being inconclusive, as opposed to being based on established knowledge.

However, in many cases like case 1 and case 4, the argument from ignorance is a reasonable (nonfallacious) argument, but is a weaker type of inference than a deductively valid inference. It is a plausible or presumptive type of inference, in the sense of Rescher (1976), which rests on a major premise that is not strictly universal, but states how things *normally* or *usually* can be expected to go (subject to exceptions). This type of presumptive inference is of a type to be identified or at least associated with the principle of epistemic closure expressed by de Cornulier (cited above). This second argumentation scheme for the *argumentum ad ignorantiam* has the following form.

> It has not been established that all the true propositions in *D* are contained in *K*.
>
> *A* is a special type of proposition such that if *A* were true, *A* would normally or usually be expected to be in *K*.
>
> *A* is in *D*.
>
> *A* is not in *K*.
>
> For all *A* in *D, A* is either true or false.
>
> Therefore, it is plausible to presume that *A* is false (subject to further investigations in *D*).

There may be various kinds of evidence that back up the second premise for the use of this type of inference. One is that *A* , if true, would be a prominent item of knowledge in a domain *D*, and would therefore normally be expected to be included in any reasonably comprehensive knowledge base in *D*. But this could vary, and would depend in a given case how deep *K* is with respect to *D*.

So conceived, the correctness of an argument from ignorance in a given case is best evaluated by pragmatic criteria, i.e. relative to a background context of dialogue or inquiry. In case 1, for example, an evaluation of the *argumentum ad ignorantiam* needs to take into account the matter of how far the investigation into toxicity of this drug has gone. In this context, the presumption of nontoxicity for humans will carry a heavier weight as the inquiry is more and more complete. But as long as the findings are based exclusively on tests with rodents, conclusions drawn about toxicity for humans will remain presumptive in nature. The correctness or incorrectness of the *argumentum ad ignorantiam* will depend on what stage the inquiry is in, and, if it is closed, what its findings were. This in turn, depends on the standard or burden of proof appropriate for the inquiry.

Not only is it right to say that the *argumentum ad ignorantiam* is closely linked to presumptive reasoning and burden of proof. You could even say that the very structure of the *argumentum ad ignorantiam* is an expression of how presumptive reasoning and burden of proof can function correctly in argumentation to shift a presumption to the other side in a dialogue. From a point of view of this framework and criteria, the cases of argument from ignorance found in ordinary conversations and in the logic textbooks can, in many instances, be shown to be nonfallacious.[1]

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