

Recent trends in evidence law in China and the new evidence scholarship*

NANNING ZHANG*

Post-doctoral Station of China University of Political Science and Law, and the Key Laboratory of Evidence Science, Ministry of Education, Beijing, 100088, China

DOUGLAS WALTON*

Centre for Research in Reasoning, Argumentation and Rhetoric (CRRAR), University of Windsor, University Ave. W., Windsor, Ontario N9B 3Y1 Canada

This paper reviews the history and status quo of evidence theory in China, and analyzes its gradual shift from a pluralistic evidence law to a model informed by scientific evidence scholarship. It compares fundamental distinctions on evidence and judicial proof between the contemporary evidence theories of China and those in Anglo-American law. The paper reveals that no matter what the evidence system is, the common method of discovering truth plays an important role in the modernization of evidence theory as such theory moves towards a comprehensive evidence scholarship. By shedding light on the theoretical framework of a comprehensive evidence scholarship and the increasing use of scientific ideas in evidence law, our theoretical perspective shows that the framework of a comprehensive evidence scholarship consists of four interdependent and overlapping components.

Keywords: Chinese evidence law, comprehensive evidence scholarship, theoretical framework of evidence, free evaluation of evidence, of judicial proof

1. Introduction

The Chinese legal system is the oldest legal tradition in the world. The long history of China provides many legal theories, and this includes evidence theory. In recent decades, the rapid development in the economics and society of China has aided in laying a good foundation for scientific research in almost every academic field. It has also resulted in breakthroughs in the field of evidence. Because of the political system, culture and even language barriers, foreign scholars find it hard to understand the significance of Chinese evidence theory. This paper elaborates the history and *status quo* of Chinese evidence system.¹ We conclude that the development of evidence theory in China experienced a course of moving from integration to separation between evidence scholarship and evidence law, and now is shifting to a comprehensive evidence scholarship from the earlier pluralistic evidence law. The goal of this paper is to compare the *status quo* of the contemporary evidence theory of China and Anglo-American jurisdictions to demonstrate that no matter what the procedural system, the common method of discovering truth must play an important role in the modernization of evidence theory if it is to become a comprehensive evidence scholarship. This paper's analysis of certain aspects of the *ad hoc* nature

* The reader should note that the concept of “new evidence scholarship” used in this paper is different from the expression “new evidence scholarship” coined by Richard O. Lempert in his article *The New Evidence Scholarship: Analyzing the Process of Proof* (1986) 66 *Boston University Law Review* 439.

** Email: nanningzhang@126.com

*** Email: dwalton@uwindsor.ca

¹ The expression “Chinese Evidence System” is used in this paper only indicates the evidence system of mainland China.

of a comprehensive evidence scholarship and its theoretical framework suggests a direction for the advancement of evidence theory.

2. History and *status quo* of Chinese Evidence System

2.1 A Brief Review of the Development of the Chinese Evidence System

In the Chinese Western Zhou dynasty (1046-771 BC), a method named *Five-Listening* had been used to distinguish whether the statement of a witness or a defendant is true or false in the trial.² The official evidence law of China, however, originated from revising the law in the late Qing Dynasty (1636-1912), which mainly involved transplanting the legal systems of Germany and Japan. In 1906, Mr. Shen Jiaben (1840-1913) and Wu Tingfang edited the first special procedural law draft in the history of China: *the Qing Imperial Code of Civil Procedure*, but this did not come into effect owing to objections from local governments. In 1911, *the Qing Imperial Code of Criminal Procedure* was promulgated to establish the evidence system. However, it lost its validity along with the collapse of the Qing Dynasty. At this point, the national government carried out the unified law amendments, promulgated in 1928 as part of which *the Criminal Procedure Law of the Republic of China*, which included nearly a hundred evidential stipulations. The major efforts in translation of continental laws resulted in the evidence system of China being deeply influenced by the law-making traditions of the Continental legal system from the beginning.

The establishment of the People's Republic of China in 1949 brought with it a more Soviet-influenced system of socialist law. First, the People's Republic of China abolished the *Six Codes* of the Kuomintang, and banished almost all of the legal resources accumulated during the period of the Kuomintang.³ At the same time, for political reasons, many legal theories of the Soviet Union became influential in China, and research on evidence law was not an exception. For example, one of the important books was *Theory of Judicial Evidence in Soviet Law* written by Andrey Vyshinsky. Vyshinsky argued that confession is the most powerful type of evidence. Thus the Chinese system accepted the principle that a confession provides enough evidence for conviction. One of the principles of Vyshinsky's theory was that criminal law is a tool of the class struggle, and thus that Western evidence law and theory were suspect. And an evidentiary system of Seeking Truth from facts which was established based on the Ideological Line of the Communist Party of China (CPC). It required that facts in issue must be established beyond all

² *Five-Listening to is* also called "*Five-Listening to litigation*". According to the record of *Zhouli · Qiuguan · Xiaosikou*, the first is to observe his words; the second is to observe his facial expression; the third is to observe his complexion; the fourth is to observe his sense of hearing and the fifth is to observe his eyesight. Combining above methods can help one to judge whether the statement of witness or defendant is true or false.

³ The Kuomintang, also called *Nationalist Party*, is a political party of China organized after the Republican Revolution of 1911-1912, by which the Qing (Manchu) dynasty was overthrown. In the summer of 1912 Nationalist leaders Sun Yat-sen and Song Chiao-ren (Song Jiaoren) merged several revolutionary groups to form the Kuomintang, with Sun as its leader. Defeated by the Chinese Communist Party in the Civil War, the Kuomintang and remnants of its armies withdrew in the summer of 1949 to the island of Taiwan. The Kuomintang has become the governing party again in Taiwan area since Ma ying-jeou won the election in 2008. The Six Codes which refers to the six main legal codes that makes up the main body of law in Taiwan and Japan is the simple name of legal system of the Kuomintang government. It includes the Constitution, the Civil Code, the Code of Civil Procedures, the Criminal Code, the Code of Criminal Procedures, and Administrative laws. The Central Committee of the Communist Party of China issued *Instructions on Abolishing the Six Codes of the Kuomintang and Determining Judicial Principles of Liberated Areas* on February 22, 1949.

doubt.⁴ The principle of presumption of innocence and the method of free evaluation of evidence were criticized, and regarded as decadent capitalist theories. In short, the law at that time had become an appendage to politics, and was used as a tool for class struggle.

With the Cultural Revolution (1966-76), however, all legal work was suspected of being counter-revolutionary, and the legal system completely collapsed.⁵ The resulting damage to the legal system was profound. During the movement, schools were closed and students were encouraged to join Red Guard units, which denounced and persecuted Chinese teachers and intellectuals. Judicial systems all over the country were destroyed, torture became common, and it is estimated that about a million died in the ensuing purges and related incidents. It seems that the evidence system disappeared without a trace during this period: courts were destroyed, the procedure of law was not carried out and scholarship for legal research was suspended.

The Chinese legal system was rebuilt right after the Cultural Revolution. The most important example is the *Criminal Procedure Law of the People's Republic of China* issued in 1979. Because of the continuous influence of ideology from the Soviet Union, the 'super-inquisitorial mode' was established as the basis for procedure. Under this mode, the courts were responsible for finding the truth, burden of proof on parties was not emphasized, and the submissions of the parties did not place any constraint on the judge's decision-making. The principle of the evidence system in this period was *To Seek Truth from Facts*, which required the police, prosecutors and judges to be loyal to the *Truth of Facts* jointly.

The collective process of proof was regarded as a subjective and cognitive one of people reasoning about objective things. It was very difficult for this principle to guide lawmaking and judicial practice because the emphasis on subjective methods of cognition was taken to mean that there was no need for any rules of evidence. As a result, there were no more additional clauses for evidence in the criminal procedure law amendment in 1996. In the early 21st century, two legislative acts on civil and administrative evidence were promulgated in succession, which led to the creation of an embryonic form of evidence law in China.⁶ Within a few years, the number of evidence-related articles in academic journals far exceeded what had been published in the past.⁷ Research on evidence law gradually shook off the influence of ideology, and academics undertook deeper research on topics such as relevance, admissibility, evidential rules, principles about the proof of a *probandum*, burden of proof, and evidence lawmaking. Meanwhile, people's interest

⁴ During the era of Planned Economy, the political system in China became a system of people's congresses that is different from Checks and Balances, with separate powers among legislative, executive, and judicial branches. The results is that the legislative and judicial branches cannot independent of the others.

⁵ The Cultural Revolution was a political campaign in China, launched in 1966 by Chinese Communist Party Chairman Mao Zedong during his last decade in power to eliminate his political rivals and revolutionize Chinese society. The Cultural Revolution also caused economic disruption; industrial production dropped by 12% from 1966 to 1968. Not until Mao's death (Sept., 1976) was the movement was brought to a close.

⁶ They are *Regulations promulgated by the Supreme Court of P. R. C. on Evidence for Civil Cases* which have been passed by the Judicial Committee of the Supreme People's Court on December 6, 2001 (promulgated for implementation as of April 1, 2002) and *Regulations promulgated by the Supreme Court of P.R.C on Evidence for Administrative Cases* which have been passed by the Judicial Committee of the Supreme People's Court on June 4, 2001 (promulgated for implementation as of October 1, 2002). One two type of evidence law is for civil cases while the other is for administrative cases. There has not been a type of evidence law specifically for criminal cases yet, but some rules about criminal evidence are included in the Criminal procedure Law. There are many distinctions between the two types of evidence law. For example, in an administrative case, the defendant has the burden of proof to prove its administrative acts are legitimate, whereas in civil cases the burden of proof is borne by the plaintiff. To clarify a point, in administrative cases in China, the defendant must be the government. Otherwise they would be civil cases. This contrasts with cases in the U.S., where the defendant is often a company that an administrative agency is suing for violating the law, as in an environmental pollution case.

⁷ Since the 1990's, a new generation of textbooks and works on evidence law sprang up like bamboo shoots after a spring rain. According to incomplete statistics, there were more than 70 kinds of publications with regard to evidence law in China in the past decade.

began to shift to many problematic issues, such as the theoretical basis of evidence law, the theory of standards of proof, the burden of proof, exclusionary rules for illegally obtained evidence and discovery of evidence.⁸ The law of evidence became part of the curricula of many universities, and some law schools have made it an obligatory module for postgraduates. In 2007, China University of Political Science and Law⁹ for the first time officially classified the law of evidence as a same-level major with procedural law for enrolled postgraduate students. The law of evidence has now become a well-known discipline in China. Professor Baosheng Zhang argues that there are four signs that the law of evidence is now a thematic discipline in China: (1) a large numbers of books and treatises on evidence theory have been published recently; (2) there have been many advances in the disciplinary construction of evidence law in some institutes; (3) two important regulations (civil and administrative evidence) were issued by the Supreme Court of the P. R. C., and some local High Courts also adopted many local rules of evidence;⁹ (4) many discussion drafts of rules about evidence have appeared, written by many scholars who promote the activity of evidence law-making.¹⁰

2.2 *The Contemporary Evidence Theories of China*

2.2.1 *The Standard of Fact-finding: Objective Truth and Legal Truth*

Chinese evidence theory accepts that cognition of facts depends on evidence. Cognition of facts on this view results from the sensations and perceptions of humans. If a thing or its situation is not sensed, even though it has an objective existence, one cannot say that a human agent senses a fact, since the fact does not enter the human being's epistemological fields and is not accepted by the agent.¹¹ Along these lines, ontological facts can be categorized under the heading Fact1, and the epistemological/cognitive facts fall under the heading Fact 2. These categories are different and the aim of evidence theory is said to be to make Fact 2 tally with Fact 1.

The distinction between Fact1 and Fact2 has given rise to two competing theories called Objective Truth and Legal Truth.¹² Disputes between the Objective Truth and the Legal Truth camps are often connected with debates about the standard of proof. The Objective Truth camp argues that the people involved in judicial activities should make their cognitive facts completely

⁸ For example, a book entitled *Zhenjufaxue Yanjiu (Study on Evidence Law)*, which edited by Professor Jiahong. He inquires into some fundamental theories of evidence law such as epistemology, value theory, methodology, information theory, probability theory, logic, mathematics, behavioral science theory and natural science in a all round way. See Jiahong He, *Zhenjufaxue Yanjiu, Study on Evidence Law*, (China Renmin University Press: Beijing, 2007).

⁹ There are four grades of courts in the Chinese trial system. The highest one is the Supreme Court; the second grade is called the High Court in each province (state), the third grade is called the Middle Court in each city, and the fourth grade is the county court. High Courts here refer to the second grade of court. Courts except the fourth grade court (the lowest) hear appeals of a lower court. But each case has only one chance for appeal. For example, if a Middle Court (the third grade) heard an appeal from a fourth grade court, then the High Court would not hear an appeal about the same case from the Middle Court.

¹⁰ See Baosheng Zhang, *Zhenjufa Lifa: Tongyi Haishi Fenli (Evidence Law-making: Unification or Decentralization)*, in *People's Court Daily*, November 20, 2007.

¹¹ Yilian Peng, *Shishilun(Theory of facts)*, (Shanghai Social Science Publishing House: Shanghai, 1996) 1.

¹² There are different statements with respect to the questions of Objective Truth and Legal Truth in Anglo-American law system. For example, Professor Robert Summers calls Objective Truth Substantive Truth, and regards the fact which the trier of fact finds as formal legal truth. See Robert S. Summers, 'Formal Legal Truth and Substantive Truth in Judicial Fact-Finding: Their Justified Divergence in Some Particular Cases', (1999) 18 *Law & Philosophy* 497-511.

tally with the ontological facts.¹³ In other words, the Objective Truth camp asserts that judges should try to reach objective truth. Because of the uncertainty in fact-finding, however, the Legal Truth camp rejects this thesis; it asserts instead that people only grasp the truth which the law describes or admits, which suggests that there is a kind of truth in the sense of law.¹⁴ The viewpoint of Legal Truth is that fact finding in judicial adjudication is based on the evidence presented, and that by virtue of missing evidence and the cognitive limitations of agents, humans cannot reach the Objective Truth. This theory is consistent with the view that the facts we know are constructs, partly determined by procedures of discovery, which in turn depend on procedures of justification. On this view, the search for truth is something we only undertake through institutional procedures which give us criteria enabling us to describe our activity as truth seeking.¹⁵ These two theories differ with respect to the standard of proof in adjudication because the Objective Truth theory requires a higher standard of proof than the Legal Truth theory.

2.2.2 *The Separation between and Integration of Evidence Scholarship and Evidence Law*

At a macroscopic level, the research on evidence in China can be viewed in terms of the relationship between evidence scholarship and law of evidence. This terminology has shifted. The term “evidence scholarship” previously had a narrow sense which focused on the general description of evidence, such as the nature of evidence, whereas the law of evidence, which had the same meaning as ‘rules of evidence’, only focused on legal control of evidence. In the history of Anglo-American evidence law, there is no definite boundary line between evidence scholarship and evidence law. In the evolving history of Chinese legal scholarship, there was a transition from integration to separation between evidence scholarship and evidence law. Although evidence scholarship and evidence law were differentiated, the research on evidence theory had been stultified in evidence law research for a long time, to such an extent that evidence scholarship had even been regarded as evidence law.¹⁶ Books on evidence, for example, were entitled ‘evidence law’ in this period. More recently, the relationship of evidence scholarship and evidence law has changed. For example, some scholars regard evidence law as a kind of evidence theory existing in the domain of law being stipulated by law. This implies that evidence scholarship has a far broader scope and that it plays a foundational role for evidence law. On this view, evidence scholarship deals with general questions about evidence and proof and applies to any field which uses evidence to prove facts.¹⁷ The aim to establish a foundational evidence scholarship is to apply its basic principles to other special subjects and then form many different branches of evidence scholarship. Because of these recently changing views, and the difference of terminology, it may

¹³ The main representative who holds this viewpoint is Professor Guanzhong Chen, *Susongzhong de Geguanzhenshi yu Falvzhenshi* (Objectively True and Legally True in Litigation), in *Procuratorial Daily*, July 13, 2000.

¹⁴ The main representative who holds the viewpoint of Legal Truth is Professor Jiahong He, according to his account of the goals and the standards of judicial proof, in *Chinese Journal of Law*. See Jiahong He, ‘On the Goals and the Standards of Judicial Proof’, (2001) 6 *Chinese Journal of Law* 40-54.

¹⁵ See Zenon Bankowski, ‘The Value of Truth’, (1981) 1 *Legal Studies* 262.

¹⁶ In the late-20th century, a number of works entitled Evidence Scholarship talked routinely about topics of evidence law. The distinction between Evidence Scholarship and evidence law is not as different as the waters of the Jinhe and Weihe (entirely different). As a matter of fact, scholars were talking what the same thing—rules on collecting and applying evidence—even though different scholars stress different aspects and made them use different terms.

¹⁷ Zongzhi Long, ‘On the Structure of “General Study of Evidence” and Relative Theories’, (2006) 5 *Chinese Journal of Law* 96.

be hard for outsiders to track what is happening.

2.2.3 *The Draft of Evidence Law* : The Uniform Provisions of Evidence of the People's Court

Among academics, there are three models on how evidence law-making in China might be made to move forward. The first model set forth a special set of requirements to describe the rules of evidence in criminal, civil and administrative procedural law. The second model let the Supreme People's Court of P. R. C. and the Supreme People's Procuratorate of P. R. C. issue judicial interpretations on evidence. The third model integrated the evidence rules within criminal, civil and administrative procedural law, forging them into a unified provision. Most scholars are presently inclined to accept the third option. Some expert draft proposals on Evidence Law made by scholars are: *the Draft of Evidence Law of China (Suggestion)* chaired by Professor Jiang Wei, *the Uniform Evidence Law* chaired by Professor Chen Jierong and *the Suggestion Draft of Evidence Law of China* chaired by Professor Bi Yuqian. In August, 2006, entrusted by the Supreme Court of P. R. C., the Institute of Evidence Law and Forensic Science (IELFS) of China University of Political Science and Law organized a meeting of many famous domestic specialists in evidence law who were responsible for drawing up *The Uniform Provisions of Evidence of the People's Court* (UPEPC), a judicial interpretative suggestion draft. It is based on the present statutes of evidence regulations and its aim is to solve the problems existing in the current evidence system and to meet the needs of judicial practice. This was made possible by thorough discussions and by constant modifications.¹⁸ The UPEPC assimilates the new achievements in evidence research and focuses on its systemic completeness, logical continuity, and consistency with other branches of law and feasibility in implementation in practice. It integrates the evidence statutes embodied in the criminal, civil and administration procedures, and provides a way of tracking the evolving situation of the evidence system in contemporary China. Taking relevance as its logical thread, the draft not only expounds general values of law such as justice and fairness, but also reflects some specific foundational values including, accuracy, harmony and efficiency. The values of justice, fairness, accuracy, and efficiency need little explanation. The value of harmony in evidence law requires clarification in two aspects. On the one hand, it is used to exclude relevant evidence such as subsequent remedial measures, attempts to settle cases, and payment of medical expenses. On the other hand, it expresses values that have the aim of protecting social relationships that promote a stable community.¹⁹ Examples of "harmony" in Chinese law are mainly embodied in the rules of privilege, like attorney-client privilege. However there are not as many exceptions as there are in Anglo-American law.

The goal of UPEPC is to provide the judges with assistance in finding the facts in issue

¹⁸ The Institute of Evidence Law and Forensic Science, China University of Politics and Law, which is comprised of the Institute of Evidence Law and the Institute of Forensic Science, was established on May 20, 2006. It is the largest research organ and the largest team of researchers in evidence science in China at present time. The institute also specially started publication the *Journal of Evidence Science* (the journal gets its name from changing the name of the *Journal of Law & Medicine*) as the platform for academic exchanges in the world of evidence science. Besides this, another professional institute which specializes in evidence scholarship research is the Institute of Evidence Law of Renmin University of China which was established at the same year. The judicial suggestion draft, finished on October 8, 2007, has a panel list which regards Professor Baosheng Zhang, dean of the Institute of Evidence Law and Forensic Science, China University of Politics and Law, as a chief specialist.

¹⁹ See Baosheng Zhang, *The Uniform Provisions of Evidence of the People's Court: Proposal for Judicial Interpretations and Drafting Commentary* (China University of Political Science and Law Press, 2008) 9-10.

during the trials. To achieve this goal, besides constructing the process of proof for fact-finding based on producing, confronting, and authenticating evidence, UPEPC establishes some basic exclusionary rules of evidence. These include rules covering hearsay, character, propensity evidence, and the like. By these means UPEPC improves the evidence discovery system and the system of adducing evidence. The code also covers the system of proof. A set of systemic theories concerning the implications of proof, principles about the *probandum*, of proof,²⁰ burdens of proof, the process of proof and methods of proof, degrees of proof, standard of proof and exclusionary rules have been formed in UPEPC. For example, Chapter III of UPEPC provides for the exclusion of hearsay, character and propensity evidence, and certain evidence when it is offered to show fault and liability. As far as expert evidence is concerned, Article 102 in UPEPC authorizes the parties to entrust a forensic science organization or qualified forensic scientists to conduct forensic identification and examination for specialized issues before filing a lawsuit. Article 103 identifies seven specialized issues that must be certified in criminal cases: (1) inability to recognize or control one's own act due to mental illness; (2) extent of bodily harm; (3) reasons for abnormal death; (4) whether statutory age for bearing criminal liability has been reached; (5) whether a witness is capable of distinguishing right from wrong and of making correct expression; (6) price of a commodity, class of a cultural artifact; and (7) species of rare and precious animal and plant, contraband, hazardous materials.²¹ In short, UPEPC lays a foundation for improving evidence law and further development of evidence theory in China. A test of UPEPC has taken place in seven courts chosen from 3000 courts all over China since May, 2008 and the test was closed on January 23, 2010.

3. Comparisons between the Contemporary Evidence Theories of China and Anglo-American Law of Evidence

As we have seen, the historical origins of Chinese traditional evidence law are found in the continental law tradition, but more recently it has been deeply influenced by the Anglo-American tradition. However, there still are some features in Chinese evidence law that makes it different from Anglo-American evidence law.

3.1 Institutional Design

There are advantages and disadvantages of both adversarial and inquisitorial modes of justice. Moreover, differing views of justice are legitimately influenced by the common practices, values and culture of a country. In models of litigation, China did not, at least typically, follow the models of the Continental legal systems and it absorbed key principles of the Anglo-American model. This process shows the traditional Golden Mean philosophical approach of China.²² The mode of

²⁰ A *probandum* is a proposition that in principle can be shown to be true or false. See Terence J. Anderson, David A. Schum and William L. Twining, *Analysis of Evidence*, 2nd ed. (Cambridge: Cambridge University Press, 2005) 60.

²¹ See Baosheng Zhang, *The Uniform Provisions of Evidence of the People's Court: Proposal for Judicial Interpretations and Drafting Commentary* (China University of Political Science and Law Press, 2008) 72-74.

²² The traditional Golden Mean of China called *Zhong yong*, means "middle" and "moderation", as opposed to extremes of excess and deficiency. See Chan Wing-Tsit (translator), *The Doctrine of the Mean* [Zhong Yong Chung Yung], attrib. to Confucius, published in *A Sourcebook in Chinese Philosophy*, (Princeton, NJ, USA: Princeton University Press. 1963) 95-115.

fact-finding in the current civil trial model of China does not give complete power to the judge. In civil cases, proceedings are partly adversarial; but this is not the case with the criminal justice system. There still exists a strong pursuit of objective truth in criminal cases. One reason for this is that criminal cases concern the defendant's freedom and the right to life. The prevailing view is that it is more important to find the real truth in criminal cases than in civil cases. A reason behind this view lies in the principle that the legal process not only serves to resolve disputes, but also to enforce state policy,²³ and the criminal justice system has a stronger policy-implementing function than the civil system. Evidence law as formulated in Anglo-American frameworks such as in the U.S. Federal Rules of Evidence, are concerned not so much explicitly with whether the truth of a case can be revealed accurately, but with the balancing of the means of proper fact-finding. For example, the balancing of relevance against other competing interests is embodied in Rule 403. Another condition hindering truth-finding in China is not the evidence system itself, but the separation between system and practice, such as the internal system for examination of judicial institutions.²⁴ Some judicial organs, for example, set up certain targets for examining the work of investigators. This resulted in the investigators having to use expedient methods to investigate cases in order to reach the targets. This necessarily hinders the significance of finding the truth about facts. In China, issues of fact are the main grounds for appeals, but Anglo-American evidence law tends to restrict appeals to claims based on evidentiary errors. It is easy to see that the Anglo-American law system emphasizes the principle that *different situations should be treated in different ways* and the constitutional principle of due process focuses more on the pretrial handling of evidence in criminal cases than on the handling of evidence at trial. Compared with it, the evidence law system of China gives much more consideration to the principle that *the same situation is treated in the same ways* in this stage. It assures that many contents of Chinese evidence law are closely related to considerations of the investigation procedure of evidence at all stages, including investigations by police, placing a case on file for prosecution, prosecution and trial,

It is fair to say that in China, truth-finding is regarded as the foremost value to be upheld in litigation. In criminal trials it is taken to be fundamentally important that all criminals should be punished. All pieces of evidence must be used for truth finding as long as they are relevant. In this system, professional judges are supposed to be responsible for the trial, and the effect of People's Assessors is extremely limited.²⁵ What is more, prohibitions against double jeopardy and plea-bargaining are not established yet and police do not play the role of factual witness in Chinese criminal justice system. In contrast with the rights of the defendant, the system lays much more stress on the protection of the victim's rights. For example, the rule is that the prosecutor should listen to victim's opinions when he examines the prosecution's case. The compensation for a victim can be achieved through the bringing of a *civil suit collateral to criminal proceedings*, but not through independent civil suit proceedings. One of the benefits of this arrangement is that it

²³ See Mirjan R. Damaška, *The Faces of Justice and State Authority: A Comparative Approach to the Legal Process* (Yale University Press, 1986) 88.

²⁴ In the Chinese legal system, judicial institutions include police stations (offices of police investigators) that are responsible for factual investigations in criminal cases, procuratorates (referring to the office of prosecutors) that are responsible for charging in criminal cases, and the courts that adjudicate legal disputes and dispense civil, criminal, or administrative justice in accordance with rules of law.

²⁵ The current trial model in China is not the same as typical jury system in common law system, but there is a system of people's assessors. To serve as a people's assessor, one shall have an educational background of, as a general rule, junior college or higher. See Decision of the Standing Committee of the National People's Congress Regarding Perfecting the System of People's Assessors, adopted at the Eleventh Session of the Standing Committee of the Tenth National People's Congress on August 28, 2004.

can avoid repeated lawsuits, and then the victim's interest can be protected in due course. In contrast, the Adversarial system can be said to take a balancing of human rights against social interests theory as its philosophical foundation. This view emphasizes that the outcome could be a good or acceptable one if and only if it comes about through a due process in order to promote the entire social public interest through protecting individual rights.

Although the motive for fact-finding in the law of China is not opposed to that of Anglo-American law, the divergence of views on their ultimate goal makes the course of fact-finding different. Anglo-American law postulates more *burdens* than China in the course of fact-finding. On the one hand, the American criminal justice system gives more consideration to the protection of a criminal defendant's rights, and it may be conjectured that this is one of the reasons why misjudged cases have recently emerged one after another in the U. S. Professor Samuel R. Gross of the University of Michigan Law School has counted 340 individual exonerations from 1989 through 2003, not including at least 135 innocent defendants in at least two mass exonerations, and also not including more than 70 defendants convicted in a series of childcare sex abuse prosecutions in his report.²⁶ Another reason he offered for wrongful convictions is that the defense has a more limited ability to conduct pretrial investigations. But there may be other explanations. While lawyers are often driven by the idea of winning litigation, police and prosecutors may be motivated to fabricate evidence in order to win against the defense lawyers. The requirement that the truth be pursued tends to take the back seat under such conditions, and this could lead to the innocent being adjudged guilty. On the other hand, it is very possible that this vast protection of defendants' rights has the effect of letting loose guilty culprits on a wide scale. From a viewpoint of the way criminal cases are handled in China, the reasons that appear to result in such a large number of exonerations lie in two aspects. On the one hand, the American criminal justice system gives more consideration to the protection of a criminal defendant's rights and this results in prosecutors missing much evidence that might be used to prove the guilt of defendant. On the other hand, the defense has a more limited ability to conduct pretrial investigations and this increase the probability of convicting of innocent defendants. At present in China, the defendant holds no such rights that are comparable to those in Anglo-American countries, and the investigation of police is confined to the search for "objective justice". The aim of the prosecutor in filing a lawsuit is not merely to win the litigation, but more importantly, to realize judicial justice eventually. Judging from this viewpoint, the prosecutor shares the same responsibility as the judge does. The result is that the police of China have a dominant right to investigate evidence. But because this may give the police too much power, a recent reform has shifted the attorney's intervening to an earlier time as defence lawyers are allowed to intervene when the interrogation begins, according to *the Law of the People's Republic of China on Lawyers* revised in October 2007.²⁷

²⁶ See Samuel R. Gross *et al*, 'Exonerations in the United States, 1989 through 2003', (2005) 95 *Journal of Criminal Law and Criminology* 2. There is no similar specific report to show such a finding in China; however, according to the statistic from the Supreme Court of People's Republic of China, more than 40,000 people were judged "not guilty" from 1996 to 2006. It can be noted that 40,000 "not guilty" verdicts in a country the size of China in ten years does not sound like a large number.

²⁷ Article 33 in the *Law of the People's Republic of China on Lawyers* reads that "As of the date of first interrogation of or adoption of a compulsory measure on a criminal suspect by the criminal investigative organ, an authorized lawyer shall have the right to meet the criminal suspect or defendant and learn information related to the case, by presenting his lawyer's practicing certificate, certificate of his law firm and power of attorney or official legal aid papers."

3.2 Classification of Evidence

Anglo-American evidence law tends not to classify evidence into different types. In contrast, the procedural law of China prescribes that all facts proving the true circumstances of the case are evidence, and the three major procedural laws classify evidence into seven kinds: material evidence, documentary evidence, testimony of witnesses, statements of parties (including statements of victims, statements and exculpations of criminal suspects or defendants), audio-visual material, expert evaluation and records of inquests and examination.²⁸ Each kind of evidence has even been strictly defined, which lays a foundation for setting up corresponding rules for different types of evidence.

3.3 Rights of Collecting Evidence by Court : Entrust vs. Forbid

The question of whether a court can consider evidence beyond that which is gathered or presented by the parties poses a considerable difference between the two litigation modes of the adversarial and inquisitorial systems. In the Anglo-American criminal justice system, generally neither the jury nor the judge has any right to collect or consider evidence that has not been gathered and presented by the parties. In the mode of the Chinese inquisitorial trial system, the judge is the dominant figure in the trial, and both the prosecutor and defense counsel play only auxiliary roles. Therefore, the law prescribes that when a party cannot collect evidence for objective reasons, but can provide clues, he or she may apply to the court for the court's collection of evidence.²⁹ Courts may sometimes collect evidence *ex officio* without parties' application.³⁰ To some extent, the aim of the court collecting evidence is to remedy the deficiency of the competency of parties in collecting evidence, and help fact-finders to make factual determination accurately. The situation is completely different from countries of Anglo-American law, because the fact-finders in Anglo-American countries do not have the same mission as judges do in China, where the jury or judges do need to explain their factual determinations. What should be paid attention to is that the collecting evidence activity of courts based on the application of parties, in contrast with the situation of parties collecting evidence by themselves, makes the parties passive in some respects.

²⁸ *The Uniform Provisions of Evidence of the People's Court: Proposal for Judicial Interpretations and Drafting Commentary* classifies the types of evidence as parties' statement; testimony by witness; authentication conclusion and expert opinion; real evidence; documentary evidence; site inspection, check and record; audio-video and electronic evidence, and added to demonstrative evidence that in the form of module, graphic and table, drawing, photograph or electronic image may be used to make duplicates or depictions of human beings, objects or scenes that are related to facts of a case.

²⁹ For example, Article 17 in *Regulations promulgated by the Supreme Court of P.R.C. on Evidence for Civil Cases* prescribes that in any of the following circumstances, the parties concerned or their agents *ad litum* thereof may plead the court to investigate upon and collect evidences: (1) The evidences applied for investigation and collection are the archive files kept by relevant organs of the state and must be accessed by the court upon authority; (2) The materials that concern state secrets, commercial secrets or personal privacy; (3) Other materials that cannot be collected by the parties concerned or the agents *ad litum* thereof due to objective reasons.

³⁰ For example, according to Article 64 of the *Regulations promulgated by the Supreme Court of P. R. C. on Evidence for Civil Cases*, the court may collect evidence *ex officio* when the following circumstances exist: (i) facts that may damage national interests, public interests or others' legitimate rights and interests; (ii) facts that involve the identity relationship; like the identity of a person or family or social relationships; and (iii) procedural facts that have no bearing on substantive disputes, such as adding parties, suspend litigation, terminate litigation, or challenge *ex officio*.

In this regard it is recognized that parties need help.³¹

On the other hand, the procedure of the courts of China investigating evidence is not only diametrically different from Anglo-American law countries, but also has much in common with countries of the continental law system. According to the criminal procedure law of China, for example, during the course of a trial, if jurors cast doubt on some form of evidence, the court can order a recess and investigate the doubts about the evidence. When carrying out such an investigation to verify evidence, the courts may conduct inquests, examinations, seizures, expert evaluations, inquiries and perpetuation.³² According to scientific principle, the court is also required to consider the effect of the investigation[?] on the defendant when investigating evidence, and should abide by the following four principles: (1) the court should inform both of the parties of the matter under investigation; (2)the court should invite both parties to take part as much as possible during the course of investigation; (3)the court should release the result to both parties; and (4)the evidence obtained through investigation should be confronted in court, and the court should offer the defendant the right to express his opinion about the evidence. Moreover, in the eyes of Anglo-American evidence law scholars, what is inconceivable but what is in fact true is that the investigating court is not limited by the scope of the indictment. However, this lack of limitation is not boundless, but has a demarcation line of avoiding causing any unfairness to either party. The way courts in China collect evidence actually resolves some difficulties that the parties encounter in the course of collecting evidence, but a court's investigation may create another problem: It may lead to the result that the testimony of a witness is collected over and over again, and the trial deadline is prolonged. This can be disadvantageous to the defendant. One of the reasons is that the means the court has for investigating and confirming evidence are not applied to testimonies of victims or witnesses, and the law does not set a limit to the frequency of parties' application. Hence the judge can only come into contact with the testimony in the court, not out-of-court.

3.4 Modes of Appraising Evidence: Free-evaluation-dominated vs. Rules-dominated

Free evaluation of evidence through 'inner conviction' is a method of appraising evidence in the Continental law system. This principle accords with natural human reasoning. Free evaluation of evidence through inner conviction is sometimes a best choice in a human agent's power in the course of fact-finding. Mr. Jiaben Shen, the Commissioner of the Legal Reform Commission of the Qing Dynasty, was responsible for revising law and imported the principle of free evaluation of evidence through inner conviction. However, after the People's Republic of China was founded, in virtue of being affected by political ideology, lots of scholars criticized free evaluation of evidence through inner conviction because they thought it had been inconsistent with the political system of democratic centralism. Not until the end of the last century could this principle be

³¹ An amendment with respect to *The Law on Lawyers of the P. R. C.* which passed on October 28, 2007, entrusts lawyer the right of investigating evidence, but does not weaken the status of the judge investigating evidence, and only gives a balance on the right of investigating evidence between the prosecutor and the defender.

³² Criminal Procedure Law of the People's Republic of China 1996, a.158.

adopted once again.³³ To some extent the method of appraising evidence in the Chinese evidence system can be regarded as a free-evaluation-dominated mode, which takes free evaluation of evidence through inner conviction as a leading principle and views rules as auxiliary. However, the rules of evidence (especially the exclusionary rules) in the Anglo-American law system emphasize the admission of evidence in the course of the trial, although they more or less leave the fact-finder free to evaluate the evidence or follow any instructions that the judge may give. One of the main consequences for Anglo-American law is that a considerable number of evidence rules are concerned with the competence or admissibility of evidence. On this basis, much of the trial typically focuses on arguments about the admissibility of evidence, while the fact-finder is left free to evaluate the evidence that is admitted. From this viewpoint, the mode for appraising evidence in Anglo-American evidence law appears to be rules-dominated. Moreover, most rules of evidence in the Anglo-American system are not self-executing and decisions by the parties generally determine if a rule of evidence will be applied. It is usual to see in Anglo-American judicial practice instances where both the plaintiff and defendant do not obey them of their own accord. When one side violates some rule of evidence, so long as the other side does not put forward an objection, the judge will not take vigorous action to stop his or her arguments. Although the evidence rules in China are not as dominant as they are in Anglo-American countries, the collection of evidence is still emphasized. The law requires judicial organizations to comply with the rules on the one hand, and asks both parties to abide by them on the other hand. On the current Chinese view, if one of the parties violates any rules, even if the other side does not object, the judge should stop him or her as duty requires. Otherwise, the judge neglects his duty. The Judges Law of the People's Republic of China stipulates the duty of a judge is to take part in a trial as a member of a collegial panel or to try a case alone according to law.³⁴ To repeat, the trial is regarded as a process of finding the truth and making judicial decisions based on the law. Generally speaking, the main duty of the judge is to find judicial justice.

4. The Modernization of Evidence Theory: Towards a Comprehensive Evidence Scholarship

Through having analyzed the evidence system of China and having compared it with the Anglo-American evidence system, we conclude that, affected by the common method of discovering truth and the mixture of different cultures, the evidence system of China which takes the Continental Law system as a model is evolving towards the Anglo-American evidence system. For instance, there are almost no exclusionary proscriptions against hearsay and character evidence; at this point in the Chinese evidence system. When the judge encounters a witness in court reporting another's statement of out-of-court, he usually calls the author of the text to the stand; by this means hearsay evidence is transformed into witness testimony. Even if the hearsay declarant is unavailable to testify as a witness in court, the judge would not remove the hearsay

³³ Article 64 of Regulations promulgated by the Supreme Court of P.R.C on Evidence for Civil Cases prescribes that the judges shall verify the evidence according to the legal procedures in an all-rounded and objective manner, shall observe the provisions of law, follow the professional ethics of judges, use logical reasoning and daily life experience to make independent judgments concerning the validity and forcefulness of the evidences, and publicize the reasons and result of judgment.

³⁴ See Article 5, *the Judges Law of the People's Republic of China*. Adopted at the 12th meeting of the Standing Committee of the Eighth National People's Congress, and amended according to the Decision on Amending the Judges Law of the People's Republic of China adopted at the 22nd meeting of the Standing Committee of the Ninth National People's Congress of the People's Republic of China on June 30, 2001.

evidence absolutely, but confirm its probative value according to the situations of corroboration with other evidence in the case. There also appear to be some changes in Anglo-American evidence law in ~~on~~ the attitude to hearsay evidence. The increasing number of exceptions to the hearsay rule is a sign of this trend. In effect, the application of science and technology in courts is undermining the use of the objection of hearsay. These trends are very likely to further reduce the distinctions between the two evidence systems. This tendency is easily visible in the course of the modernization of evidence theory we are writing about.

4.1 From Pluralistic Evidence Law to Comprehensive Evidence Scholarship

In the 21st century, the emphasis of evidential research in China, on the one hand, began to shift from a static description of evidence to a dynamic analysis of the process of proof. On the other hand, the study of evidence theory has experienced parallel shifts—from emphasizing the elements of evidence to examining pluralistic evidence theories, from focusing on ontology to epistemology, from unified evidence scholarship to pluralistic evidence law. Now is an appropriate time for another shift from pluralistic evidence law to a comprehensive evidence scholarship. The conceptual separation between evidence scholarship and evidence law has not been maintained for a long time. This has resulted in the emergence of an evidence science that can synthesize both subjects. For example, Professor Zongzhi Long, of Southwestern University of Politics and Law, called this field “General Study of Evidence”.³⁵ In June 2006, scholars from China University of Political Science and Law put forward the definition of “evidence science” in *the Petition for Key Laboratory in Evidence Science of the Ministry of Education of China* as “a system of scientific theories and methods, which can synthesize natural science and social methods, and study collection of evidence, technology of authentication, and the general law of fact-finding and legal application.” It can reasonably be inferred from this definition that “evidence science” is comprehensive in nature, and takes law of evidence and forensic science as two principal areas covering three branches: forensic medicine, criminalistics and evidence law. It shows how the comprehensive research areas are extending into many disciplines such as medical science, engineering, natural science, philosophy and psychology, and how they synthesize teaching, research and judicial practice.³⁶ Compared with evidence theory research in Britain³⁷, the multidisciplinary researches on the fundamental theories of evidence in China is weaker. The effort to advance the concept of evidence science in China is aiming at solving this problem and strengthening the researches on fundamental theories of evidence. The effort to advance the concept of evidence science in China seeks to address this problem and thus strengthen research about fundamental theories of evidence

³⁵ Above n. 17, at 98.

³⁶ See <http://gate.cupl.edu.cn/zjkxyjs>. However, one problem comes up: China is now facing an extremely fast advance of evidence theory, and the lack of necessary support systems may hinder it from keeping up with the changing situation. And it is hard to push forward the amendment of criminal procedure law now in virtue of the rights-driving between judicial organs and the reform of judicial system limited by constitution. These developments are very likely to bring about negative influences on the modernization of evidence theory of China.

³⁷ The research on evidence theory of Britain is almost in progress at the same time with its fundamental theories. For example, as early as in the mid-20th century, the evidence theory of Britain had accepted a significant input from philosophy.

We now turn to consider recent developments on evidence scholarship in the Anglo-American system. The new trend of evidence scholarship in Anglo-American system has concerned itself with innovative scholarship on evidence, including the law of evidence, inferential reasoning (the logic of proof), probabilities, the role of statistics and narratives in arguing about deciding contested issue of fact in legal contexts, and the practical and theoretical implications of developments in forensic science, forensic psychology, and artificial intelligence.³⁸ Jackson has observed that evidence scholarship has ranged far beyond legal doctrine. It has been much concerned with theory, particularly with theoretical models, and it has been informed by a very wide range of disciplines, from social psychology, forensic philosophy, mathematics, linguistics, to economics. With such a rich display of disciplinary approaches now benefitting the development of evidence law and the process of legal proof, it might seem that is all is rosy in the evidence scholarship garden.³⁹ According to Peter Tillers, the new evidence scholarship shares the following characteristic features: more of a focus on logic and less on law, more of a focus on proof and less on rules of admissibility, more of an emphasis on logical rigor than on rhetoric, and an employment of technical analysis, especially as derived from formal logic, computer science and mathematics.⁴⁰ In his eyes, David Schum's book *Evidence and Inference* is a leading example of the style of theories characteristic of the new evidence scholarship.⁴¹ Another characteristic of this approach cited by Tillers is an emphasis on the multistage nature of evidential inference in which a single inference is made up of several statements linked together by generalizations, and the structure of evidence is viewed as a chaining together of a set of such single inferences. Tillers calls such models network and generalization (NAG) models of evidential inference.⁴² As far as whether it can be called a science of evidence is concerned, Schum gave an answer from another angle in his book *The Evidential Foundations of Probabilistic Reasoning*.⁴³ In the project *Thought about a Science of Evidence*, Schum elucidated conceptions of "science" and of "evidence" respectively and argued that they are now fixed forever. Then he put forward an *Integrated Science of Evidence* which involves law, philosophy, logic, probability, semiotics, history, psychology, and artificial intelligence.⁴⁴ In his recent article, Schum presents an argument that

³⁸ Park and Saks think that the New Evidence Scholarship is a mature field of scholarship—so much so that the label "new" may now be a misnomer. See Roger C. Park & Michael J. Saks, 'Evidence Scholarship Reconsidered: Results of the Interdisciplinary Turn' (2006) 47 *B. C. L. Rev.* 984.

³⁹ See John D. Jackson, 'Modern Trends in Evidence Scholarship: Is All Rosy in the Garden?' (2003) 21 *Quinnipiac Law Review* 894-895.

⁴⁰ Peter Tillers, 'Webs of Things in the Mind: A New Science of Evidence', (1989) 87 *Michigan Law Review* 1227.

⁴¹ *Ibid*; David Schum, *Evidence and Inference for the Intelligence Analyst* (Lanham, Maryland: University Press Of America, 1987). A recent conference on the new evidence scholarship entitled 'graphic and visual representations of evidence and inference in legal settings' had been taken place at Cardozo School of Law in New York City, 28–29 January 2007. Collections from the conference were published on *Law, Probability and Risk* (2007). See (2007) 6 (1-4) *Law, Probability and Risk* 1-326.

⁴² Peter Tillers, 'Are There Universal Principles or Forms of Evidential Inference? Of Inference Networks and Onto-Epistemology', Working Paper No. 215, (2008) 1. <http://ssrn.com/abstract=1079235>.

⁴³ D. Schum, *The Evidential Foundations of Probabilistic Reasoning* (Northwestern University Press, 2001) 6-7.

⁴⁴ See D. Schum, *Thought about a Science of Evidence* (UCL, 2005). According to the definition given by the *Oxford English Dictionary* for "science," the "science" of evidence which Schum defines is meant to represent general usage, not a stipulative definition of a strict kind. The idea of an integrated theory of evidence can be traced back to Gilbert and Bentham. Gilbert, in his posthumously published book *the Law of Evidence*, set out to establish a tightly integrated theory of evidence on the foundation of Lockean theory of knowledge. And Bentham's theory of evidence also purports to integrate at least the logic, psychology and philosophy of evidence. See Gilbert, Sir Jeffrey, *the Law of Evidence*, 3rd ed (London, 1754); Jeremy Bentham, *Rationale of Judicial*

studies of evidence in the fields of law and probability constitute a science of evidence when they are examined in light of five criteria for scientific activity.⁴⁵ He gives three examples of studies from law and probability to justify this argument. Examples from law include a method for classifying recurrent forms and combinations of evidence regardless of their substance or content, studies identifying credibility attributes for different forms of evidence, and studies of complex argument construction in which new lines of inquiry and evidence are generated or discovered. Examples from probability include various views among probabilists about what the weight or force of evidence means and how it should be assessed, including several examples of how important subtleties or complexities in evidential reasoning can be captured for study and analysis. He also offers an example of how alternative theories about the meaning of complex combinations of events can be tested empirically.⁴⁶ As he argues, whether the subject of evidence is in fact a ‘science’ can be debated depending on one’s views of what a ‘science’ actually is. We do not oppose the use of the word “science” for the subject of evidence.⁴⁷ In our opinion, no matter what we name it, the modern theory of evidence is being characterized as multidisciplinary and comprehensive.

Tillers has outlined three approaches as the leading models for postulating logic as the science of proof should be applied to legal evidence.⁴⁸ The first is the statistical approach. Statistical models of legal evidence advocate the Bayesian rules for calculating prior and conditional probabilities to estimate the numerical value of evidence in a given case.⁴⁹ The second is the story-based approach, initially advanced by psychologists. This approach constructs and compares stories about what might have happened, comparing for consistency within a story, and consistency of the story with the facts, to judge whether one story is more or less plausible than another. The story that is better supported by factual reasons that back it up and by applicable generalizations is said to be “anchored”. The story-based approach has currently been taken up as a research topic in artificial intelligence and law.⁵⁰ The third approach is that of argumentation, which uses visualization tools like the Wigmore charting method to analyze, summarize, organize and display the evidence in a case. On the argumentation model, the evidence for one side of a disputed case is weighed against the evidence on the other side by constructing and comparing the

Evidence, Hunt & Clarke (London, 1827).

⁴⁵ The five criteria for scientific activity are : (1) Knowledge obtained by study; acquaintance with or mastery of a department of learning; (2) A particular branch of knowledge or study; a recognized department of learning; (3) A branch of study that deals either with a connected body of demonstrated truths or with observed facts systematically classified and more or less comprehended by general laws, and which includes reliable methods for the discovery of new truths in its own domain; (4) The kind of organized knowledge or intellectual activity of which various branches of learning are examples; and (5) The intellectual and practical activity encompassing those branches of study that apply objective scientific method to the phenomena of the physical universe (the natural sciences), and the knowledge so gained. See David A. Schum, ‘A science of evidence: contributions from law and probability’, (2009) 8 *Law, Probability and Risk* 205.

⁴⁶ Ibid, at 197-231.

⁴⁷ There were several reasons for discontent about the use of the term ‘science’. For example, some persons, whose work directly involves consideration of the properties, uses and discovery of evidence, said that they did not wish to identify their work with something called ‘evidence science’. Schum’s counterargument was that these same persons were almost certainly using a PC or a MAC every day in their work without any worry that someone would identify their work with computer science. He further claims that a science of evidence excludes no one interested in honest inquiry, a respect for evidence and a search for truth. Ibid, at 199-200, 204.

⁴⁸ Peter Tillers, ‘General Introduction’, in Hendrik Kaptein, Henry Prakken and Bart Verheij, eds, *Legal Evidence and Proof: Statistics, Stories, Logic* (Farnham, England, Ashgate, 2009) 5-8.

⁴⁹ See Colin Aitken and Franco Taroni, *Statistics and the Evaluation of Evidence for Forensic Scientists*, 2nd ed. (John Wiley & Sons, Ltd, 2004) Ch 3.

⁵⁰ Floris Bex, *Evidence for a Good Story: A Hybrid Theory of Arguments, Stories and Criminal Evidence*, PhD Thesis, University of Groningen, 2009.

arguments and counter-arguments on each side. Although the Bayesian approach has been dominant in the past, and still remains so, there are some objections to it that have been raised. One is objection that the required numbers are not usually available, or cannot be assigned in a non-arbitrary way. Another objection is that the assignment of such numbers in an arbitrary way leads to errors when the statistical rules are applied to the facts of the case.⁵¹ For these reasons, the story-based approach and the argumentation approach have been attracting recent interest in studies on artificial intelligence and law...⁵²

As Tillers notes, although the three approaches differ in significant respects, they share of the feature of using defeasible reasoning.⁵³ In probabilistic reasoning, new evidence may reduce the posterior probability of the hypothesis. In the story-based approach, new evidence can reduce the plausibility of a story, or even make the story appear to be highly implausible. The argumentation approach is a procedural one in which arguments are thought to be open to critical questioning and skeptical doubts, as well as counter-arguments, as the sequence of argumentation proceeds. Defeasibility in legal reasoning about evidence and proof is important for several reasons. One of them is that legal evidence has to do with historically unique facts. Another is that there are typically hypotheses, or explanatory stories on both sides (as stressed by the story-based approach), that need to be critically examined to see which one is less open to inconsistencies and other logical defects. For example, there are grounds for critically questioning witness testimony that often need to be taken into account in assessing evidence. Many of the other common types of legal evidence, for example reasoning to causation, evaluating expert opinion testimony, abductive reasoning to a best explanation of the facts of a case, reasoning from analogy, and so forth, all need to be evaluated as defeasible reasoning.

Over the past few years there has been strong concentration on evidential reasoning in the artificial intelligence and law community, shifting the emphasis from models of deductive and inductive (probabilistic) models of reasoning to argumentation models. Argumentation is turning out to be a good fit for evaluating defeasible reasoning of the kind used in managing and assessing legal evidence. On the argumentation model, there are always two sides to proving something at issue, the pro and contra sides. The evidence on each side is analyzed as a chain of reasoning made up of premises and conclusions, and the probative weight of the whole connected structure of evidence is judged by how well each supports its case and stands up to criticism from the opposed side. The new models of proof and evidence put forward in computational studies on argumentation are providing ways of bringing evidence scholarship together towards bringing conformity with current scientific findings and standards into judicial proof.

On the argumentation model, defeasible arguments of the kind so commonly used in evidence law are analyzed and evaluated using defeasible argumentation schemes. To say they are defeasible means that they are open to doubts and questions expressed by a second party to whom

⁵¹ Ton Derksen and Monica Meijnsing, *The Fabrication of Facts: The Lure of the Incredible Coincidence*, in Hendrik Kaptein, Henry Prakken and Bart Verheij, eds, *Legal Evidence and Proof: Statistics, Stories, Logic* (Farnham, England, Ashgate, 2009) 39-70.

⁵² Floris Bex, *Evidence for a Good Story: A Hybrid Theory of Arguments, Stories and Criminal Evidence*, PhD Thesis, University of Groningen (2009) 81-98.

⁵³ Above n. 48, at 3. The term 'defeasible' comes from medieval English contract law, referring to a contract that has a clause in it that could defeat the contract. However, the origin of the term in recent analytical studies in philosophy and law is the paper 'The Ascription of Responsibility and Rights' of H. L. A. Hart. See Hart, H. L. A. (1949; 1951). *The Ascription of Responsibility and Rights*. *Proceedings of the Aristotelian Society*, 49, 1949, 171-194. Reprinted in *Logic and Language*, ed. A. Flew, Oxford, Blackwell, 1951, 145-166. Hart's notion was that a claim could be tentatively acceptable because it is supported by evidence, but later found unacceptable because circumstances show that the case is an exception to the general rule supporting the claim.

the argument was put forward to support the claim at issue. Each scheme has a set of matching critical questions that represent standard ways of critically probing into the argument to find its potential weak spots. A burden of proof shifts back and forth as critical questions are asked and answered.

The twin problems of central importance for utilizing argumentation schemes in law are those of finding schemes for common kinds of evidence especially – witness testimony evidence and expert opinion evidence. In some ways the latter task is more manageable, because the use of expert opinion evidence in the courts typically takes the form of scientific evidence, and the inferential structure of scientific evidence is somewhat clearer than that of witness testimony of kinds not involving a scientific expert as the source. Schum has built criteria for assessing the competence and credibility of testimony in law, based on ways courts have found, over the centuries, of assessing such testimony by drawing inferences from it and critically questioning it.⁵⁴

Schemes are increasingly being recognized in computational domains such as multi-agent systems as forms of reasoned argument. This trend holds potential for making significant improvements in the reasoning capabilities of artificial agents to be used as argument assistants for lawyers.⁵⁵

Schemes for defeasible legal argumentation are being widely applied to examples of legal reasoning about evidence in studies on artificial intelligence and law. In such cases, the management of expert opinion evidence is fundamentally important. In the literature on schemes, one is typically used as the classical example, namely argument from expert opinion, a form of argument has also been of central and intense concern in Anglo-American evidence law in the past three decades. The scheme argument from expert opinion is presented below.⁵⁶

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 following critical questions match the argument from expert opinion

CQ₁: *Expertise Question*. How credible is *E* as an expert source?
CQ₂: *Field Question*. Is *E* an expert in the field proper for *A* ?
CQ₃: *Opinion Question*. What did *E* assert that implies *A*?
CQ₄: *Trustworthiness Question*. Is *E* personally reliable as a source?
CQ₅: *Consistency Question*. Is *A* consistent with what other experts assert?
CQ₆: *Backup Evidence Question*. Is *E*'s assertion based on evidence?

When an argument is put forward that fits this scheme, it represents a kind of evidence that has been used to support the conclusion, and this the conclusion is defeasibly supported by the premises. However, because the argument is defeasible, it is open to critical questioning, and if any one of a set of critical questions is asked, the burden of proof shifts back to the proponent of the argument to answer the question. Failure to respond means that the argument in question is suspended, and cast into doubt.

Another scheme that is vitally important to consider in reasoning about evidence in law is the

⁵⁴ Above n. 43, at 108.

⁵⁵ Verheij, B., *Virtual Arguments: On the Design of Argument Assistants for Lawyers and Other Arguers* (The Hague: Asser Press 2005) 55-58.

⁵⁶ Walton, D., Reed C. and Macagno, F., *Argumentation Schemes* (Cambridge: Cambridge University Press, 2008) 310.

one for argument from testimony.⁵⁷

| | |
|---------------------------|--|
| Position to Know Premise: | Witness <i>W</i> is in position to know whether <i>A</i> is true or not. |
| Truth Telling Premise: | Witness <i>W</i> is telling the truth (as <i>W</i> knows it). |
| Statement Premise: | Witness <i>W</i> states that <i>A</i> is true (false). |
| Conclusion: | <i>A</i> may be plausibly taken to be true (false). |

The following critical questions match the argument from witness testimony.

- CQ₁: Is what the witness said internally consistent?
- CQ₂: Is what the witness said consistent with the known facts of the case (based on evidence apart from what the witness testified to)?
- CQ₃: Is what the witness said consistent with what other witnesses have (independently) testified to?
- CQ₄: Is there some kind of bias that can be attributed to the account given by the witness?
- CQ₅: How plausible is the statement *A* asserted by the witness?

The critical questions represent types of rebuttals that can be directed against a defeasible argument, and hence they are very important for analyzing and evaluating defeasible argumentation generally. Schum treats the factors of previous convictions related to dishonesty, other misconduct related to dishonesty, character evidence regarding honesty, and testimonial bias, under the heading of veracity.⁵⁸ He treats objectivity as a separate factor in assessing witness credibility. Under the general category of credibility are included the three factors of veracity, objectivity, and observational sensitivity. This approach is consistent with the wealth of experience regarding witness testimony accumulated in the common law legal system since the year 1352.⁵⁹

4.2. *The Ad Hoc Natures of the Comprehensive Evidence Scholarship*

4.2.1 *Pluralistic Fundamental Theories of Comprehensive Evidence Scholarship*

Evidence is usually defined as a statement or fact that supports another statement or fact. When people talk about the evidence in a case, they normally refer to the primary sources of evidence called evidential data.⁶⁰ For example if we hear testimony of a witness who says he saw someone who looked like the suspect jump into a red car, that is evidential data that supports the proposition ‘There is testimony by a witness who saw someone who looks like the suspect jump into a red car’.⁶¹ In addition to this evidential data, the term ‘evidence’ can also refer to conclusions drawn by inference from it. So, for example, the evidential datum above can be used to support the inference that the suspect jumped into a red car. The term has specialized meanings when used with respect to specific fields, such as logic, scientific research, criminal investigation, and legal discourse. In logic, evidence can include propositions which are presumed to be true, used in support of other propositions that are presumed to be falsifiable. In this sense, “evidence” for a

⁵⁷ Ibid.

⁵⁸ Above n. 43, at 107.

⁵⁹ Ibid, at 106.

⁶⁰ Above n. 20, at 382.

⁶¹ Above n. 52, at 13.

proposition is anything that increases the estimate of the probability of the truthfulness of the proposition. This definition means that what is evidence depends on the agent that estimates the probability. To physicians, evidence may be any objective or subjective symptoms observed by the patient, such as blood chemistry or depression, and physical signs observed by a doctor such as an enlarged liver, or even other information about the patient's past history such as smoking or drinking habits or lifestyle. In scientific research, evidence is usually considered to be data that supports or rejects a hypothesis from observation, survey, experiment or previous research. Evidence in science hews to the ideal of experimental method accumulated through observations of phenomena that occur in the natural world, or that are created as experiments in a laboratory.⁶² The evidential theories and methods separated from these fields form the fundamental theories of the comprehensive evidence scholarship that refer to those fundamental and guiding theoretical premises which can resolve its value for existence and developmental direction, reveal the basic issues of evidence science, and make its systemic theories rely on it for existence and development, including epistemology, logic, philosophical value, theory of efficiency, theory of information and other theories of natural science, and so on.⁶³ The theoretical fundamentals of comprehensive evidence scholarship imply an important feature: it is interdisciplinary or multi-disciplinary in nature. Many evidence scholars have elaborated on the interdisciplinary nature of the subject of evidence. For example, Professors Roger Park and Michael Saks divide this interdisciplinary subject into five parts: (i) Psychology and evidence; (ii) Forensic science; (iii) the New Evidence Scholarship; (iv) Feminism and evidence; and (v) Economics and evidence.⁶⁴

A sixth part (vi) should be added however, Evidence in Artificial Intelligence and Law. Research in this area is not only developing new technology to aid in the process of analysis and evaluation of evidence, but is developing more precise structures for reasoning generally, leading the way toward realizing Wigmore's dream of having a science of proof built on logic that can be applied to reasoning about evidence. Artificial intelligence and argumentation studies have recently developed new tools for argument visualization that are useful for analyzing the structure of different kinds reasoning about evidence in law. Three such systems, Araucaria⁶⁵, Carneades⁶⁶ and Rationale⁶⁷ can be used to visually represent reasoning based on evidence. In Araucaria a

⁶² It is necessary to note the difference between *evidence in science* and *scientific evidence*. Evidence in science is the accumulation of data through evaluation and research that carefully examines how an intervention is delivered and what improvements result. It is repeated with the same result in multiple sites with different researchers and different experimental and control groups. According to Achinstein, there are at least four concepts of evidence in use in the sciences: epistemic situation evidence, subjective evidence, veridical evidence and potential evidence. See Peter Achinstein, *The Book of Evidence*, (Oxford University Press: New York, 2001) 13-30. On the other hand, scientific evidence is fact or opinion evidence that purports to draw conclusions based on specialized knowledge of a science or to rely on scientific principles for its evidentiary value. It is usually presented in court by specialists like a serologist, pathologist or chemist testifying as an expert, if in some situations the use of scientific techniques may provide to additional evidence necessary to prove or disprove the facts in issue. Scientific evidence is one of the kinds of evidence in the law.

⁶³ Professor Twining suggests that evidence as a multi-disciplinary subject is about inferential reasoning. The common ground consists of some general philosophical issues about logic, probability, truth, and knowledge. See William Twining, 'Evidence as a Multi-Disciplinary Subject' in William Twining, *Rethinking Evidence: Exploratory Essays* (Cambridge University Press, 2006) 440.

⁶⁴ Above n.38, at 950. The "New Evidence Scholarship" here is in Richard O. Lempert's sense. See Richard O. Lempert, 'The New Evidence Scholarship: Analyzing the Process of Proof' (1986) 66 *Boston University Law Review* 439.

⁶⁵ <http://araucaria.computing.dundee.ac.uk/>

⁶⁶ <http://carneades.berlios.de/downloads/>

⁶⁷ <http://rationale.austhink.com/>

premise is diagrammed as a statement in a box, and the user can insert an arrow representing an inference from the premise (or from a set of premises) to a conclusion. If the inference fits an argumentation scheme, that can be marked on the diagram as well. Carneades is a tool especially designed for legal argumentation. In Carneades a premise is a relation between a statement and an argument, shown as a node in the diagram. An example is given in figure 1 below. There is a key difference between the two diagramming systems. In Araucaria, each statement can be used as a premise in only one argument. In Carneades, a statement can be used as a premise in any number of arguments.

Prakken presented a simple example suggesting how common arguments used in law are based on visual evidence: this object looks like an affidavit, therefore it is an affidavit.⁶⁸ This type of argument has been represented as an argumentation scheme called argument from appearance.⁶⁹

Major premise: If a visible object appears to be an x then the object is an x.

Minor premise: This visible object appears to be an x.

Conclusion: This visible object is an x.

This scheme is open to critical questioning. The critical questions for the scheme for argument from appearance are given below.

CQ₁: Could its appearing to be an x be misleading for some reason?

CQ₂: Although it appears to be an x, could there be grounds for thinking it is a y?

This defeasible argument is best seen as providing only plausible reasoning, as opposed to deductive or inductive grounds of support of its conclusion. It is best evaluated on a balance of considerations using critical questions.

Let us consider another example of evidence based on this scheme. During a report of a convenience store robbery (*Radio News*, November 9, 2004), the convenience store clerk stated: "The handle of what appeared to be a handgun was visible in his [the robber's] pocket". By argument from appearance, shown in the node, if the item visible in the pocket appeared to be the handle of a handgun, then the tentative conclusion can be drawn that it is the handle of a handgun. One reason for invoking such a presumption is safety. It may be prudent to assume that the concealed object is a handgun, based on what appears to be its visible handle, even though the assumption may be wrong. Figure 1 suggests how the argument can be visually represented by Carneades.

The original motivation of the Carneades system was to accommodate two different variations on what happens when a respondent asks a critical question.⁷⁰ On the one theory, as indicated above, when a critical question is asked, the burden of proof shifts to the proponent's side to answer it. On the other theory, merely asking the question does not defeat proponent's argument until the respondent offers some evidence to back it up. Carneades approaches this distinction by distinguishing three types of premises, called ordinary premises, assumptions and exceptions.

⁶⁸ Henry Prakken, 'AI and Law, Logic and Argumentation Schemes', (2005) 19 *Argumentation* 303-320.

⁶⁹ Douglas Walton, 'Argument from Appearance', (2006) 195 *Logique et Analyse* 319-340.

⁷⁰ Douglas Walton and Thomas F. Gordon, 'Critical Questions in Computational Models of Legal Argument', *Argumentation in Artificial Intelligence and Law*, IAAIL Workshop Series, ed. (Paul E. Dunne and Trevor Bench-Capon, Nijmegen, Wolf Legal Publishers, 2005) 103-111.

Witness testimony as a form of evidence is based not only on schemes for witness testimony and argument from expert opinion, but underlying these schemes, often argument from appearance can be found. In particular, critical questions for witness testimony evidence, for example of the kind that raise questions about observational sensitivity,⁷¹ may relate to argument from appearance.

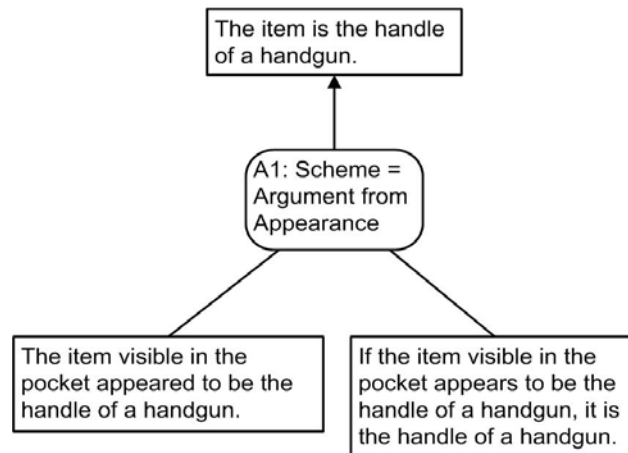


Figure 2: Carneades Argument Map of the Handgun Example

How the Carneades method of computational dialectic works as applied to legal cases has been illustrated using a case study that shows how the method uses many different argumentation schemes, not only for legal argument analysis and evaluation, but also for legal argument construction⁷². This methodology can be summarized as a series of ten steps. First, the user makes a list, called a key list, of all the statements explicitly expressed in the text of the argument. Second, the user identifies the premises and conclusion of each argument composed of the statements in the key list. Third, the user chains the arguments together in a sequence. Fourth, the user creates an argument diagram, like the one illustrated above, that visualizes an interpretation of the structure of the argumentation. Fifth, the user labels as many of the arguments as possible with an argumentation scheme. Sixth, the user labels the statements that have been accepted as true or rejected as false, depending on the current consensus of the participants, and other factors. Seventh, the Carneades software uses the arguments to reason forward from the accepted and rejected statements and the argumentation schemes that are applicable. Eighth, the system assigns proof standards, like preponderance of evidence, that apply to each statement in the graph of the argument. Ninth, the system uses the argumentation schemes as applied to the key list to reveal implicit premises. Tenth, the system evaluates the argumentation in the case, using the argumentation schemes, proof standards, and other components of the method.

The solution of Carneades to the problem of critical questions is helped by its ability to support structures that enable implicit premises to be revealed dynamically as argumentation proceeds. The status of statements as accepted or not can change during the course of continued

⁷¹ Above n. 43, at 103.

⁷² Thomas F. Gordon and Douglas Walton, 'A Carneades Reconstruction of Popov v Hayashi', Knowledge Engineering Review, to appear, 2010.

argumentation. The acceptability of a statement also depends on its proof standard. The four proof standards postulated by Gordon and Walton according to their model are: scintilla of evidence, preponderance of the evidence, dialectical validity, and beyond a reasonable doubt.⁷³ The account of the standards in the model may not correspond to those in law, where other standards may be recognized, and where the standards may not be formulated in such precise ways. Still, the model provides a framework for beginning the task of formulating conditions of successful proof in a computational and logical model. In response to an argumentation scheme, each critical question is modeled as placing a burden of proof on the proponent, or as placing the burden on the respondent. Even after the respondent has made an issue out of the statement in an exception, the statement continues to hold until sufficient evidence has been presented to show the statement of the exception is acceptable. Thus Carneades allows the burden of proof to be assigned to either the proponent or the respondent of an argument, depending on how the premises of a given argumentation scheme are classified.

4.2.2 Taking Evidence in Law as a Core

Different fields concentrate on different questions of evidence, as stated above, for people in different fields usually use different evidence in order to draw relevant conclusions. Evidence in its broadest sense refers to anything that is used to determine or demonstrate the truth of an assertion. The word “evidence” is associated more often with law than with any other field, and the field of law can supply the most extensive recorded legacy of experience and scholarship of evidence because each country has to establish a strong judicial system to solve the disputed facts based on evidence and does its own special research on the subject of evidence. Evidence has become so closely associated with law that the term “evidence” in law often refers to the law of evidence at the present time, regarded as data presented to a court or jury in proof of the facts in issue and which may include the testimony of witnesses, records, documents, and physical objects. Professor Twining warns us that the theory equating “evidence law” with “evidence” by implication excludes or downgrades all the many lines of inquiry that can be subsumed under “the New Evidence Scholarship” and undermines a coherent conception of the subject of evidence in law.⁷⁴ Research on evidence has received relatively more attention in legal scholarship, and is mostly undertaken by judges and legal practitioners. These facts show that evidence in law is the core area of evidence scholarship. Therefore, the research on evidence science must take evidence in law as a central field, and then stretch it to other evidence theories.⁷⁵

In law, evidence can be defined as any species of proof, or probative matter, legally presented at the trial of an issue by the parties involved in the matter. In criminal cases, for example, evidence is the means whereby the prosecution seeks to show beyond reasonable doubt that the defendant is guilty of the charge and the defence seeks to cast a reasonable doubt on the charge. Evidence in law generally can be dissected into two principal parts: the law of evidence and forensic science. The law of evidence is the body of law regulating the admissibility of what is

⁷³ Thomas F. Gordon and Douglas Walton, ‘Proof Burdens and Standards’, *Argumentation and Artificial Intelligence*, ed. Iyad Rahwan and Guillermo Simari, Berlin (Springer, 2009) 239-260.

⁷⁴ Above n. 63, at 440.

⁷⁵ In the Introduction to the journal of *Evidence Science*, Professor Baosheng Zhang characterizes this nuclear field as “science of evidence in a narrow sense”. See Baosheng Zhang, Yanjiu zhengju kexue, Cujin Sifa Gongzheng, (Studying Evidence Science and Promoting Judicial Justice), (2007) 15 *Evidence Science* 4.

offered as proof in a legal proceeding. It comprises all the rules governing the presentation of facts and proofs in proceedings before a court, including in particular the rules governing the admissibility of evidence and the exclusionary rules. Forensic science is the application of science in law. It is also a multidisciplinary subject, because it also uses methods from biology, chemistry, medicine, physics, computer science, geology, and psychology.

4.2.3 *Substance-blind and Substance-based Methods*

Although there is a near infinite variety of the substance or content of evidence, Professor Schum has argued that many characteristics, credentials and principles of evidence transcend the differences between types of evidentiary data such as traces, handwriting, and witness testimony. He postulated a “substance-blind method”, which considers the basic inferential characteristics or credentials of evidence (relevance, credibility, and probative force) without regard to the substance or content of the evidence or to the context of the inquiry.⁷⁶ The substance-blind method is used to describe a particular way of categorizing forms and combinations of evidence without reference to its substantive content. Such a categorization is based on inferential properties of evidence rather than its contents. For example we can make general statements about relevance, credibility, authenticity, and probative force without reference to any particular kind of data. Significant insights, however, ordinarily come from the substance of the evidences or the context of the cases. In spite of being a strong proponent for the “substance-blind approach,” Professor Twining argues that the claim of “substance-blind approach” is quite limited for the following reasons. First, the approach does not claim to say much about the uses of evidence in different kinds of evidence (e.g. deterioration of DNA samples, the reliability of confessions, and the interpretation of texts belonging to different traditions of historiography). Second, the claims are limited to empirical, hypothesis-driven enquiries, and, in many contexts sharp distinctions between fact and value are difficult to maintain. A substance-blind approach to inferential reasoning does not, on its own, claim to throw light on such matters as the purposes of an enquiry, the conditions under which it is undertaken, how problems are framed, potentially competing interests and values, or the uses to which particularly evidentiary arguments are put.⁷⁷ During the process of determining the facts in dispute at a trial, the fact-finders may encounter any conceivable kind of substantial evidence provided by an array of different sources. Some of these sources are human assets or informants; other sources are sensing devices of various kinds. Theories of evidence should provide pragmatic and valuable method for judicial fact-finding. That requires us to not only consider substance-blind methods, but also substance-based methods for a more comprehensive approach to evidence. A substance-based method requires analysts to consider the specific content included in the evidence. For example, when we consider an instance of expert testimony, before weighing its relevance, credibility, and probative force, we should pay attention to the principle the scientific test based on, the method the scientists used, the procedure the technicians took, and even the management of the materials.

4.2.4 *Bringing Conformity with Current Scientific Findings and Standards into Judicial Proof*

⁷⁶ Above n. 60, at 71.

⁷⁷ Above n. 63, at 449.

As the gulf widens between reality as perceived by our natural sensory apparatus and reality as revealed by prosthetic devices designed to discover the world beyond the reach of this apparatus, the importance of the human senses for factual inquiries has begun to decline.⁷⁸ Stepping into the 21st century, humanity's science and technology are developing at an unprecedented rate, and the application of science and technology is going ahead by leaps and bounds. Even so, many trials still come down to which witnesses are believed. The application of science and technology to the field of law is mainly embodied in the flourishing of the scientific method of proof. It is reasonable to expect that more precise and complex scientific methods and technologies will be increasingly applied to different fields of social activities. The law also follows this epistemological inclination, one that occupies a dominant position in this historical period. To some extent, many questions that modernized litigation generates are becoming more and more technically sophisticated, as more and more facts that are very important to litigation procedures can only be discovered by advanced scientific and technological means. As there is a tendency for courts to be confronted by more evidentially diversified cases, seeking for factual truth will inevitably and more often rely on scientific evidence. These developments in turn mean there will be more dependence on expert witness testimony in litigation. Courts have given more consideration to scientific evidence like fingerprints, blood tests, DNA tests, handwriting, X-ray, polygraph and psychology, and so on. For example, DNA testing may be used to determine whether sperm found on a rape victim came from an accused party; a latent fingerprint found on a gun may be used to determine whether a defendant handled the weapon; drug analysis may be used to determine whether pills found in a person's possession were illicit; and an autopsy may be used to determine the cause and manner of death of a murder victim.⁷⁹ Of course, we should note that they are not all equally accepted by the courts due to some flaws in them. On the one hand, as the Report of the National Academy in the U.S. says, with the exception of nuclear DNA analysis, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source.⁸⁰ Many forensic tests—such as those used to infer the source of toolmarks or bite marks—have never been exposed to rigorous scientific scrutiny. Most of these techniques were developed in crime laboratories to aid in the investigation of evidence from a particular crime scene, and researching their limitations and foundations was never a top priority.⁸¹ Moreover, the imperfections of DNA evidence, while in themselves not a reason to abandon the forensic use of such evidence, are particularly dangerous precisely because of their perceived infallibility. The unfettered use of technologies may threaten important values other than accuracy and security, such as privacy and fairness; and the elimination of risk and pursuit of certainty are uniquely dangerous as proffered justifications for ever-more-oppressive social control measures—such as vast national DNA databases—because they can never fully be attained.⁸² The most controversial cases involving the admissibility of polygraph, drug tests and other scientific evidence occur when other evidence is relatively sparse. In this situation courts must focus on the accuracy of the

⁷⁸ Mirjan R. Damaška, *Evidence Law Adrift* (Yale University Press, 1997) 143.

⁷⁹ The National Academies, *Strengthening Forensic Science in the United States: A Path Forward* (the National Academies Press, 2009) s-6.

⁸⁰ *Ibid*, s-5

⁸¹ *Ibid*, s-5, 1-6.

⁸² Andrea L. Roth and Edward J. Ungvarsky, 'Book Review for Forensic Identification and Criminal Justice: Forensic Science, Justice, and Risk (by Carole McCartney)', (2009) 8 *Law, Probability and Risk* 56.

procedure.⁸³ However, new advances in science and technology, such as iris scans and facial recognition of biometric technologies, mtDNA analysis, low copy number DNA analysis, Y-short tandem repeat (Y-STR) testing and single nucleotide polymorphism (SNP) testing, are improving the accuracy of scientific evidence. Research reports on three experiments that measure the accuracy of a computer fingerprint matcher at identifying the source of simulated latent prints.⁸⁴ On the other hand, another reason that courts have difficulty in accepting scientific evidence is that jury or judges are not scientists and most of them do not have the background to bear on the expertise in cases. Fortunately, expert witnesses appointed by parties or courts can interpret the data contained in scientific evidence to help them understand scientific evidence better by using the statistical analysis approach or probability theory. For example, many statisticians who have testified for either plaintiffs or defendants in the courtroom provided many statistical methods to interpret scientific evidence such as DNA profile evidence.⁸⁵ These directions suggest the growing need for a scientific and logical system of proof that takes biological science and technology as its core. Scientific Evidence has ranked first in all kinds of means of judicial proof, and is becoming King of Evidence of the new generation in litigation.⁸⁶

4.3 *The Theoretical Framework of the Comprehensive Evidence Scholarship*

To establish a coherent comprehensive theory of evidence, it is necessary to shed light on its theoretical framework and clarify the elements of evidence theory and their inter-relationships. Evidence scholarship is not merely to be added in with components of science and technology, but the scientific theory of evidence needs to be its main aim. According to Professor Baosheng Zhang, the theoretical system and practical application of the theory of evidence consists of four levels in a logical order: (1) the basic theory and application of evidence science; (2) the basic theory of forensic science; (3) the applications of evidence law and forensic science; and (4) consulting services about how to use evidence rules and technological development of forensic science.⁸⁷ A simplified way to explain these four levels is to say that the theoretical framework of a comprehensive evidence scholarship for fact-finding consists of the following four interacting and partially overlapping components:

- (1) Basic theories of evidence science, which take general questions of evidence as main objects, including the definition of evidence and fact, the theory of classification of evidence, the developmental history of evidence theory, the theory of properties of

⁸³ Joseph L. Gastwirth, 'The Statistical Precision of Medical Screening Procedures: Application to Polygraph and AIDS Antibodies Test Data: Rejoinder', (1987) 2 *Statistical Science* 213-238.

⁸⁴ The first experiment used rolled prints supplied by the National Institute of Standards and Technology (NIST) to simulate latent prints. The second experiment used our own manufactured latent prints. The third experiment used latent prints supplied by NIST. In their study, An Automated Fingerprint Identification System (AFIS) was used to simulate the task that a human latent print examiner is typically asked to perform as part of ordinary casework. See Simon A. Cole *et al*, 'Beyond The Individuality Of Fingerprints: A Measure Of Simulated Computer Latent Print Source Attribution Accuracy', (2008) 7 *Law, Probability and Risk* 165-189.

⁸⁵ Details for statistical analysis approach for interpreting scientific evidence see Joseph L. Gastwirth, *Statistical Science in the Courtroom* (Springer, 2000).

⁸⁶ Jiahong He, Zhongguo Zhengjufaxue Qianzhan (Expectation for Chinese Evidence Law), in *Procuratorial Daily*, Sept. 2, 1999.

⁸⁷ Quoted from a lecture entitled *Evidence Science and Its Theoretical System: the Interdisciplinary Trend of the Law of Evidence*, given by Professor Baosheng Zhang at China University of Politics and Law on Dec. 4, 2006.

evidence, the formal theory of evidence, the methodology of evidence, and the relationship between an evidence system and other systems such as politics, economics.

(2) Theory of evidence law, namely, a kind of legal evidence theory which takes all types of basic principles of legal evidence applied in criminal cases, civil and administrative cases, such as evidence competence rules, the relevance rule, rules about the production of evidence, rules about confrontation of witnesses, the hearsay rule, privileges, the character evidence rule, judicial notice, presumptions, the application of these rules and evidence law-making as main content. As stated above, this is one of the core fields of the comprehensive evidence scholarship.

(3) Forensic science, which more narrowly indicates theory of scientific evidence. “Forensic science” may generally be defined as the application of “scientific, technical, or other specialized knowledge” to assist courts in resolving questions of fact in civil and criminal trials.⁸⁸ Generally speaking, forensic science is science used in public affairs, in a court or in the justice system. That means any science used for the purposes of the law is a forensic science, Therefore, it can cover criminalistics, engineering sciences, odontology, pathology (biology), physical anthropology, entomology, psychiatry & behavioral science, questioned documents, toxicology, dentistry, chemistry, autopsy techniques, and much more. Forensic science is another core field of the comprehensive evidence scholarship.

(4) Theory of proof, including the logic of proof, objections to supposed proofs, burden of proof, the procedure of factual proof, approaches for assessing weight of evidence, confirming evidence, standard of proof, and judicial notice and presumptions.

There are many theories that could be classified as pluralistic underpinnings of these theories that are partially overlapping. For example, the principles of proof and the law of evidence are closely related to or dependent on each other. The law of evidence governing admissibility not only concerns principles of proof, judicial notice and presumption, but also general evidential theory. This includes ontology, epistemology, and logic, as well as foundational theories such as social theory and theories of justice. As Professor Twining wrote, “[T]he study of evidence in law is fundamentally and inescapably related to the study of evidence generally.”⁸⁹ The outcome of the overlap between the law of evidence and forensic science is usually called “forensic science evidence”. There is also social-scientific evidence and nonscientific expert evidence which is the result of the law of evidence overlapping with other subjects. Social-scientific evidence involved in litigation usually builds on, and is closely related to, other bodies of knowledge concerned with human conduct. And nonscientific expert evidence encompasses a wide variety of persons who are deemed as being in possession of specialized knowledge, usually by virtue of their occupation, rather than by their background training in science.⁹⁰ The goal of comprehensive evidence

⁸⁸ Forensic science’s role in the civil justice arena is expanding. Issues range from questions of the validity of a signature on a will, to a claim of product liability, to questions of whether a corporation is complying with environmental laws, and the protection of constitutionally guaranteed individual rights.

⁸⁹ See William Twining, ‘Take Facts Seriously—Again’, in William Twining, *Rethinking Evidence: Exploratory Essays*, (Cambridge University Press, 2006) 435.

⁹⁰ P. T. C. Van Kampen, *Expert Evidence Compared: Rules and Practices in the Dutch and American*

scholarship is to find facts. The above theories interact with each other to form the theoretical framework of comprehensive evidence scholarship, and this framework provides a scientific plan for resolving fact-finding under the support of pluralistic theories.

5. Conclusion

The development of evidence theory in China has experienced a course of moving from integration between evidence scholarship and evidence law to a pluralistic evidence law. Aiming at solving the problems existing in the current evidence system and meeting the needs of judicial practice, the contemporary evidence theories of China, which take Continental legal systems as a model, also absorb many principles from the Anglo-American law of evidence. By analyzing the evidence system of China and comparing it with the Anglo-American law of evidence, we conclude that the evidence system of China not only combines principles from both Continental and Anglo-American legal systems, but also retains its own features.

On the one hand, due to differences of history and culture, there are some key distinctions between Chinese evidence law and Anglo-American evidence law systems. These include a different institutional design, a different system for classification of evidence, different constraints on the right to collect evidence by courts, and different modes of appraising evidence. To some extent these distinctions reflect the heterogeneity of evidence theory in different contexts. On the other hand, in the course of a modernization of evidence theory that is influenced by the common method of discovering truth among different cultures, the increasing homogeneity among different system of evidence is being strengthened by the application of science and technology in courts. These developments are bound to further reduce the past distinctions between different evidence systems and they suggest that the evidence law in China is moving from pluralistic model towards a comprehensive evidence scholarship. As we have shown, comprehensive evidence scholarship needs to be both interdisciplinary and multi-disciplinary in nature. It is based on pluralistic fundamental theories that have the flexibility to cope with new directions, reveal the basic issues of evidence science, and make its systemic theories build on concepts from epistemology, logic, philosophical value, theory of efficiency, theory of information and other theories of natural science. Comprehensive evidence scholarship takes evidence in law as a core area because the field of law can supply the most extensive recorded legacy of experience and scholarship of evidence, as its use of the central notion of relevance has shown. We conclude that both the substance-blind method and the substance-based method are needed for analyzing evidence. The framework of a comprehensive evidence scholarship for fact-finding we have proposed can be said to consist of four interacting and partially overlapping components: basic theories of evidence science, theory of evidence law, forensic science, and theory of proof. These theories need to closing interact with each other, forming the theoretical framework of comprehensive evidence scholarship.

Acknowledgements

We gratefully acknowledge the help provided by Professor William Twining, of University

College London, and Professor Paul Roberts, of Nottingham University, for their helpful suggestions. We are also greatly indebted to Professor Mike Redmayne, of London School of Economics, Dr Déirdre Dwyer, of Oxford University, Professor Peter Tillers, of the Benjamin N. Cardozo School of Law, and Professor Baosheng Zhang, of China University of Political Science and Law, for their careful reading of this paper and many suggestions for making revisions.

Funding

This paper was supported by grant number 70873134, “Study on Evidence Management within the Model of Factual Investigation,” from the National Natural Science Foundation of China and by research grant 410-2008-0065, “Argumentation in Artificial Intelligence and Law” from the Social Sciences and Humanities Research Council of Canada.