Legal Evidence and Proof

Statistics, Stories, Logic

Edited by

HENDRIK KAPTEIN
Leiden University

HENRY PRAKKEN
University of Groningen and Utrecht University

BART VERHEIJ
University of Groningen

ASHGATE

Legal Evidence and Proof

Statistics, Stories, Logic

Edited by

HENDRIK KAPTEIN
Leiden University

HENRY PRAKKEN
University of Groningen and Utrecht University

BART VERHEIJ
University of Groningen

ASHGATE

© Hendrik Kaptein, Henry Prakken and Bart Verheij 2009

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the publisher.

Hendrik Kaptein, Henry Prakken and Bart Verheij have asserted their moral right under the Copyright, Designs and Patents Act, 1988, to be identified as the editors of this work.

Published by
Ashgate Publishing Limited
Wey Court East
Union Road
Farnham
Surrey, GU9 7PT
England

Ashgate Publishing Company
Suite 420
101 Cherry Street
Burlington
VT 05401-4405
USA

www.ashgate.com

British Library Cataloguing in Publication Data
Legal evidence and proof : statistics, stories, logic. -
(Applied legal philosophy)
1. Evidence (Law)
I. Kaptein, Hendrik II. Prakken, Henry III. Verheij, Bart
347'.06

Library of Congress Cataloging-in-Publication Data
Kaptein, Hendrik.
Legal evidence and proof : statistics, stories, logic / by Hendrik Kaptein, Henry Prakken, and Bart Verheij.
p. cm. -- (Applied legal philosophy)
Includes index.
ISBN 978-0-7546-7620-1
1. Evidence (Law) 2. Evidence, Criminal. I. Prakken, Henry. II. Verheij, Bart. III. Title.

K2261.K37 2008
347'.06--dc22

2008033518

ISBN 978-0-7546-7620-1

Reprinted 2010

Printed and bound in Great Britain by the MPG Books Group

Series Editor's Preface

The objective of the Applied Legal Philosophy series is to publish work which adopts a theoretical approach to the study of particular areas or aspects of law or deals with general theories of law in a way which focused on issues of practical moral and political concern in specific legal contexts.

In recent years there has been an encouraging tendency for legal philosophers to utilize detailed knowledge of the substance and practicalities of law and a noteworthy development in the theoretical sophistication of much legal research. The series seeks to encourage these trends and to make available studies in law which are both genuinely philosophical in approach and at the same time based on appropriate legal knowledge and directed towards issues in the criticism and reform of actual laws and legal systems.

The series will include studies of all the main areas of law, presented in a manner which relates to the concerns of specialist legal academics and practitioners. Each book makes an original contribution to an area of legal study while being comprehensible to those engaged in a wide variety of disciplines. Their legal content is principally Anglo-American, but a wide-ranging comparative approach is encouraged and authors are drawn from a variety of jurisdictions.

Tom Campbell
Centre for Applied Philosophy and Public Ethics
Charles Sturt University, Canberra

Preface

Studies in the theory of legal reasoning increasingly turn to issues of evidence and proof. This may be welcomed, if only because adjudication and legal conflict resolution in general are related to contested facts rather than contested law. Indeed, this development may further the cause of the facts, against legal scholars' and lawyers' tendency to identify legal scholarship with knowledge of the law.

This collection of contributions originated in a research project on conflict resolution organized by the University of Amsterdam. Next, an important impetus for this book came from a workshop on Reasoning about Legal Evidence in Cracow organized by Floris Bex, Henry Prakken and Bart Verheij (as part of the IVR Conference, August 2007). Most contributors to this book were present. Lively debate led to a good part of the results presented here.

It is to be hoped that these chapters contribute to further improvement of theories or even the theory of legal evidence and proof, and thus to humanly important qualities of legal practice.

The Editors[1]

1 The editors would like to thank Khadija Kadrouch for indexing this book.

试读结束：需要全本请在线购买： www.ertongbook.com

Contents

List of Figures

List of Tables

General Introduction

Legal Evidence and Proof: Past, Present, Future

Legal evidence has to do with facts (though even this basic stance has been questioned, in the already extensive literature on the subject). In fact, the law has to do with facts in so many more ways. Law itself consists of institutional facts. Facts determine the content of law: think of Hart's minimum content of natural law, based on elementary facts of human and social life. Law sets factual limits to human conduct, through threats of punishment and so much more, just as it creates possibilities for important kinds of conduct and its factual consequences, such as legislating and contracting. Lawful (and unlawful) conduct changes the facts of the world. So many more relationships of law and fact remain to be investigated.

Most important, of course, are facts determining the application of legal rules to parts of the living (and sometimes dead) world, or: the problem of legal evidence and proof. Establishment of such facts, needed in order to realize the law (and hopefully justice and right) may go without much further saying, in any case if all parties and others concerned reasonably agree on them. But more than a few legal and other conflicts on the application of rules are fought over disputed facts, rather than disputed law, in courts of law and in the real world. So methods and standards have to be devised to settle conflicts over facts in some or other authoritative or even rational manner. A rather ancient but still probably well-known example of this is to be found in the Code of Hammurabi:

> If a man charge a man with sorcery, but cannot convict him, he who is charged with sorcery shall go to the sacred river, and he shall throw himself in the sacred river; if the river overcome him, his prosecutor shall take to himself his house. If the river show the man to be innocent and he come forth unharmed, he that charged him with sorcery shall be put to death. He who threw himself into the river shall take to himself the house of his accuser.

A rather unconventional way to establish strange facts, one might say with the benefit of hindsight, though a later and probably still better-known issue of evidence and proof offers a comparable semblance of the complete disparity of methods of discovery and facts to be established. Here is the story of fact-finding by King Solomon, once again (1 Kings 3, verse 16, New King James translation):

> Now two women who were harlots came to the king, and stood before him. And one woman said, 'O my lord, this woman and I dwell in the same house; and I

> gave birth while she was in the house. Then it happened, the third day after I had given birth, that this woman also gave birth. And we were together; no one was with us in the house, except the two of us in the house. And this woman's son died in the night, because she lay on him. So she arose in the middle of the night and took my son from my side, while your maidservant slept, and laid him in her bosom, and laid her dead child in my bosom. And when I rose in the morning to nurse my son, there he was, dead. But when I had examined him in the morning, indeed, he was not my son whom I had borne.'
>
> Then the other woman said, 'No! But the living one is my son, and the dead one is your son.' And the first woman said, 'No! But the dead one is your son, and the living one is my son.' Thus they spoke before the king. And the king said, 'The one says, "This is my son, who lives, and your son is the dead one"; and the other says, "No! But your son is the dead one, and my son is the living one."' Then the king said, 'Bring me a sword.' So they brought a sword before the king. And the king said, 'Divide the living child in two, and give half to one, and half to the other.'
>
> Then the woman whose son was living spoke to the king, for she yearned with compassion for her son; and she said, 'O my lord, give her the living child, and by no means kill him!' But the other said, 'Let him be neither mine nor yours, but divide him.' So the king answered and said, 'Give the first woman the living child, and by no means kill him; she is his mother.' And all Israel heard of the judgment which the king had rendered; and they feared the king, for they saw that the wisdom of God was in him to administer justice.

However, some progress seems to have been made. Reconstruction of King Solomon's argumentation, or better still, justification in terms of implicit premises brings to light a reasonably strong connection between testimonies cunningly elicited and the fact to be proven. Arguments referring to riverside experiments in order to determine sorcery seem all too enthymemetic to pass muster in terms of more modern standards of evidence and proof. King Solomon applied a method of investigation brilliantly devised to solve a seemingly intractable problem. That is, intractable in those days: today, a simple (or sometimes not so simple) DNA test would do the job just as well, according to the same high standards, albeit at the cost of rather reduced drama.

Progress in forensic sciences and technologies has been formidable indeed. But human wisdom did not always keep up with it, as is probably conclusively proven by recent and not so recent scandals involving sentencing or even killing the innocent in the name of criminal law. This (and more evidential mishaps in application of the law) still happens in the most civilized of jurisdictions. Why?

One major reason may be the deep-seated tendency of the judiciary to regard the handling of matters of evidence and proof as presupposing no special knowledge and skills, and acting on it. Of course things go wrong at times, it will be added, but then there is no perfect human practice anyway. Strange as this may sound, at least to evidence scholars, it is a deep-seated conviction, repeatedly expressed by

试读结束：需要全本请在线购买： www.ertongbook.com

prominent court members who are probably not conversant with a rather extensive literature in the field of evidence and proof. Thus a prominent district court vice-president in The Netherlands, W.M. Van den Bergh, expressed his conviction on 'the simplicity of basic facts' as follows (as recently as 2008):

> In order to decide whether the criminal defendant did commit the crime no special professional judges' expertise is needed. No special knowledge or skills are needed in order to become convinced of a criminal defendant's guilt, or to have doubts about it.

Probably not much special knowledge nor many skills are needed to comprehend that this kind of conviction behind convictions may be rather dangerous for the innocent. This is amply demonstrated by so many death row inmates in the United States owing their lives and liberty to non-legal people applying special knowledge, skills and zeal to their wrongly decided cases. Just as more than a few victims of misadministration of criminal justice in Great Britain, The Netherlands and elsewhere were freed as a consequence of 'laypeople's' unrelenting zeal on behalf of their cases. (Derksen's scathing and, in the end, effective public criticism of courts' misuse of basic statistics in a nurse's conviction for infant killing is a case in point: see also his contribution to this book.)

In line with this is legal people's tendency to incorporate issues of fact into the law. Indeed one important feature of legal evidence and proof is the regulation of legal fact-finding. Rules of procedure govern police authorities in search and seizure, admissibility of evidence and of witnesses, distribution of burdens of proof, legal standards of proof, determination of proof by authoritative bodies and so much more of course. This may indeed lead to legalizing or better still, legally formalizing issues of evidence and proof. Or: as long as the rules are faithfully adhered to, the outcome of legal processing of evidence is taken to be equivalent to legally relevant certainty as to the facts of the case. A notorious expression of this legal attitude towards facts (or 'facts') is United States Supreme Court member Scalia's well-known dictum in *Herrera* v. *Collins* (506 US 390, 1993):

> Mere factual innocence is no reason not to carry out a death sentence properly reached.

Thus doubts about the redundancy of special expertise and skill in the determination of legal evidence and proof (is it really true that malice, negligence or innocence are plain to see?!) seem to be done away with by reference to the authority of legal procedure. (Scalia even seems to be in postmodern company, doubting the very concept of a fact independent from 'authoritative establishment'.)

Still this is not a generally accepted standpoint, outside or even inside judiciaries. To limit the discussion to criminal procedure: it may be true that the great majority of criminal cases relate to certainty (according to whatever standards) of offender identification. Even then, issues of malice and negligence may not always be

simple. Next, more than a few hard cases remain. There may be circumstantial evidence only, witnesses may appear not to be completely trustworthy, expert witnesses may contradict each other, and so on. It does not seem plausible or even viable to do away with such kinds of uncertainties by simply referring to standards of legal procedure, let alone by appealing to commonly available knowledge and skills as sufficient to solve such riddles.

Thus questions about rational standards of evidence and proof crop up, as distinct from rules of procedure determining issues such as the division of burdens of proof and admissibility of evidence. Obviously, availability of direct evidence in the sense of exhaustive demonstration of the facts of the case before adjudicators' eyes and ears is rather exceptional. It would be hard even to think of a convincing example of this. In a grimly captivating story of a lawyer, herself caught in the machinery or machinations of criminal justice, Janet Malcolm comments on this with the following fundamental remark (1999, 19):

> Historical reconstruction in all cases gives rise to structures that are more like ruins than proper buildings: there is never enough solid building material and always too much dust.

How to clear this dust away, to a sufficient extent? What counts as dust, what is a sufficient extent? (Scalia probably would not mind.) Probability considerations plaguing so many criminal and other issues of fact set in here already. Next, there is the different and more practical distinction between direct and circumstantial evidence. Such evidence may be available to adjudicators with or without the intervention of witnesses.

In any case, the absence of 'the facts of the case themselves' (if this is a sensible concept at all) raises questions on standards of evidence and rules (in a wide sense) governing relationships between 'available evidence' and 'the facts of the case'. This is related to the long-standing and recently revived discussion of the 'logic' of evidence and proof, dominated for so long by the towering figures of Bentham and Wigmore. To further introduce this discussion it seems apposite to quote Bentham at some length (1827, Book I, Part 1):

> By the term evidence, considered according to the most extended application that is ever given to it, may be, and seems in general to be, understood, any matter of fact, the effect, tendency, or design of which, when presented to the mind, is to produce a persuasion concerning the existence of some other matter of fact—a persuasion either affirmative or disaffirmative of its existence.
>
> Of the two facts thus connected with each other, the latter may, for the purpose of expressing the place it bears in its relation to the other, be distinguished by the appellation of the *principal* fact, or matter of fact: the other, by that of the *evidentiary* fact, or matter of fact.

> Taking the word in this sense, questions of evidence are continually presenting themselves to every human being, every day, and almost every waking hour, of his life.
>
> ...
>
> The impression, or something like an impression, I see in the grass—the marks of twisting, bending, breakage. I think I see in the leaves and branches of the shrubs—the smell that seems to present itself to my nostrils—do they afford sufficient evidence that the deer, that the enemy, I am in chase of, have passed this way? Not polished only, but even the most savage men—not human kind only, but even the brute creation, have their *rules*—I will not say, as Montesquieu would have said, their *laws*—of Evidence.

Just as so many issues of evidence and proof remain the same in human life, at least some issues of legal evidence and proof have, of course, changed since the days of Bentham. Still, miscarriages of justice continue to the present day. We may have come a long way since Hammurabi, but King Solomon seems less easily surpassed. One driving force, apart from intellectual zeal, behind the recent revival of research into evidence and proof is the hope that (still) more rational rules or even principles of fact-finding, evidence and proof may be discovered and/or devised. Two more introductory cautionary remarks are in order then.

First, and even if the issue is limited to facts relevant for application of the law, many different kinds of evidence may be relevant. This ranges from specific facts determining 'who did what, and why' or specific forensic facts like collar bone x-rays determining the legally relevant age of refugees, or specific facts determining damage to be established by comparing two complete future courses of events (with and without tort), to general facts like: what are customs in specific parts of society determining 'what may be reasonably expected in commercial dealings'. Studies in the logic of evidence and proof tend to concentrate on offender identification, probably the most important issue in this field indeed.

Second, this book does not aim to represent more than a small part of the current state of the art in studies of legal evidence and proof. Thus issues of witness reliability, and issues of psychology in general, however important, are generally left out of account. The focus is on reasoning, logic, in a very broad sense. This may be further detailed as follows.

Three Current Approaches to the Study of Logic and Argumentation in Legal Evidence and Proof

Studies of argumentation and logic in factual legal inference have broadly speaking been of three kinds: statistical, story-based, and argument-based. First, statistical approaches acknowledge that evidence cannot provide watertight support for a

factual claim but almost always leaves some uncertainty. They then apply the 'standard' theories for reasoning under uncertainty: statistics and probability theory. Much work in the statistical approach is not focused on general statistical models of legal fact-finding but instead criticizes particular uses of statistics in court cases (e.g. Dawid 2005). Those who do focus on general models sometimes advocate a Bayesian approach, according to which domain experts provide conditional probabilities on hypotheses given the available evidence, while the fact-finder estimates the prior probabilities on the hypotheses. The mathematics of Bayesian probability theory then allows the computation of the posterior probability of the hypotheses, given the evidence. If, for a certain hypothesis, this probability exceeds the proof standard, the hypothesis can be accepted. Probabilistic theories of evidential reasoning have been thoroughly studied by David Schum (e.g. 1994).

Statistical methods can be very useful for investigating the relevance of evidence, for instance, by performing so-called sensitivity analysis, i.e., testing how a change in the likelihood of a statement affects that of other statements (see, e.g., Kadane and Schum 1996). However, the statistical approach is by no means uncontroversial (a useful critical overview of the debate is Lempert 1986). One objection is that in legal cases the required numbers are usually not available, either because there are no reliable statistics, or because experts are unable or reluctant to provide reliable estimates of probabilities. Another objection is that statistics and probability theory impose a standard of rationality that cannot be attained in practice, so that their application would lead to more instead of fewer errors. To overcome these and other limitations of statistical models, other models have been proposed.

Second, the story-based approach was initially proposed by the psychologists Bennett and Feldman (1981). Their main claim was not normative but empirical, being that the way lawyers make factual judgements is not by statistical reasoning but by constructing and comparing stories about what might have happened. Wagenaar et al. (1993) go a step further, arguing that this is in fact the only way for fact-finders to reason about the facts of the case, given the cognitive limitations of humans. Their research then takes a normative twist, studying how story-based factual judgement may be more rational. An important point here is that specific stories must be 'anchored' in factual generalizations which may, however, be less than certain, so that their applicability to a case must be critically examined. The story-based approach has also been embraced by some artificial intelligence (AI) researchers, based on the idea that story-based reasoning is not unlike abductive reasoning and inference to the best explanation, for which elaborate AI models exist (Josephson 2001; Poole 2001; Keppens et al. 2005; Thagard 2005).

A third approach takes not stories, but arguments, as the main concept. Bentham looms large here as well. In contemporary theory, however, Wigmore's charting method of legal evidence is prominent. With this method alternative arguments from evidence to hypotheses can be graphically displayed and sources of doubt in these arguments can be revealed (e.g. Wigmore 1931). Generalizations are

important here as well, since they are the 'glue' that connects the evidence with the hypotheses, and since their general plausibility and possible exceptions are important sources of doubt. Wigmore's charting method has been extended and refined by the 'New Evidence Scholars' (e.g. Anderson et al. 2005). One study of legal evidential reasoning from the perspective of dialogical argumentation theory is Walton's (2002). In AI and Law the argument-based approach has been founded on so-called non-monotonic, or defeasible logics, which were developed in AI to formalize reasoning with uncertain and incomplete information in cases where uncertainty cannot be quantified. In AI and Law one type of non-monotonic logic is particularly popular: argument-based logic, modelling defeasible reasoning as the construction and comparison of arguments and counter-arguments (e.g. Verheij 2000; Bex et al. 2003; Prakken 2004).

Finally, some have studied combinations of approaches. For example, Keppens (e.g. Keppens et al. 2005) has studied combinations of probability theory and abduction in the context of investigation. Kadane and Schum (1996) and Schum (2001) have reinterpreted Wigmore charts as so-called Bayesian networks. Such networks, developed in AI, combine probability distributions with graphical models of probabilistic dependencies (which may be based on commonsense generalizations).

Although the three approaches are different in important respects, they also share an important feature. In all three approaches, defeasibility is prominent. For example, in probabilistic models new evidence may reduce the posterior probability of hypotheses, in story-based approaches new evidence may reduce the credibility of a story, and in argument-based logics new evidence may give rise to arguments that defeat a previously undefeated argument. In all these cases the deeper reason for this phenomenon is that evidence almost always leaves room for doubt: sources of evidence (such as witnesses) are fallible, and general world knowledge is uncertain and leaves room for exceptions.

Defeasibility of legal evidential reasoning is related to both investigative and procedural aspects of legal evidence and proof. Legal reasoning about the facts takes place in a variety of contexts, which may be broadly divided into contexts of investigation and contexts of judgment. This distinction is, of course, related to the well-known epistemological and methodological distinction between contexts of discovery and contexts of justification. It was long held that these contexts are completely separated: how a scientist came to a certain theory was regarded as irrelevant for the truth of the theory. Legal logicians have long had a similar attitude to the justification of legal judgments: the process by which a certain judgment was reached was regarded as irrelevant for the quality of the judgment. However, developments in philosophy and AI have softened the sharp distinction between the two contexts. For these reasons, this book takes a broad perspective, studying both the investigative and the judgment phase.

Relationships between phases of investigation and judgment raise interesting issues, such as whether both phases are governed by the same or by different models of inference. For instance, looking for hypotheses about the facts of a case,

as in the investigative phase, may require abductive models of reasoning with a relatively low proof standard, while deciding whether a hypothesis can be accepted as true involves critical adjudication with a high standard of proof. Another issue is to what extent the soundness of an inference in the judgment phase depends on the quality of the preceding investigation.

A further theme relevant for reasoning about the facts of a case is the relation between rationality requirements and legal constraints. At first sight, since this book's focus is on rational models of factual legal reasoning, it would seem that specific features of legal systems may be ignored. However, it will turn out that one stumbles quite quickly on the tension between a rational ideal and legal reality. The simplest example of this tension is the necessity to decide about a case even though perfect knowledge about what has happened is unattainable. Human imperfection in deciding cases necessarily implies that some offenders go free, while some innocent people are punished. Also, evidence on which a case is decided is not simply given but established by rules of procedure and admissibility of evidence. Moreover, the inferences that can be drawn from the admissible evidence are not only determined by rules of rational inference but also by legal procedural rules on, for instance, burdens of proof and presumption.

In conclusion, studies of legal evidence and logic should not just focus on models of inference but should embed such models in accounts of investigation and different kinds of procedure.

An Overview of the Book

This book aims to cover these different issues as follows. Chapter 1 offers brief discussion of why legal evidence and proof seems desirable at all, or even imperative. Chapters 2 and 3 represent statistical approaches in a broad sense. Story-based discussion is to be found in Chapters 4 to 6; Chapters 7 and 8 compare story-based with argument-based accounts. The remaining three chapters are firmly on argumentative grounds. Summaries of the chapters may clarify this:

1. *Hendrik Kaptein* (Leiden University) discusses the basic question why legal evidence and proof are needed at all. Reasons against singling out offenders are expounded. Also, practical obstacles to the reliable establishment of evidence and proof pass muster. This leads to questions concerning the very concept of proof, presumably linking present evidence with past (or future) events. Brief discussion of (Benthamite) ideals seems to lead inexorably to the conclusion that proof of past events is impossible in principle. Lawyers' standard answer to such theoretical scepticism refers to proceduralism: there need be no such thing as historical truth in adjudication and conflict resolution in general, as 'legal truth on the facts of the matter' is exhaustively determined by the outcome of reasonable legal procedures. This 'practical solution' is argued to be deeply implausible in principle, not just because it may lead to legal establishment of fact at odds with historical reality.

试读结束：需要全本请在线购买： www.ertongbook.com