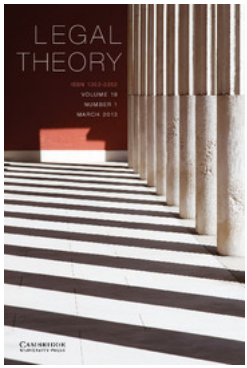

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COHERENCE, EVIDENCE, AND LEGAL PROOF

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The aim of this essay is to develop a coherence theory for the justification of evidentiary judgments in law. The main claim of the coherence theory proposed in this article is that a belief about the events being litigated is justified if and only if it is a belief that an epistemically responsible fact finder might hold by virtue of its coherence in like circumstances. The article argues that this coherentist approach to evidence and legal proof has the resources to meet some of the main objections that may be addressed against attempts to analyze the justification of evidentiary judgments in law in coherentist terms. It concludes by exploring some implications of the proposed version of legal coherentism for a jurisprudence of evidence.

I. INTRODUCTION

Coherence theories of law and adjudication have been extremely influential in contemporary jurisprudence.[1] However, with few exceptions, these theories have dealt almost exclusively with the role that coherence plays in the justification of conclusions about disputed questions of law. Issues concerning the justification of factual conclusions have not typically fallen within the scope of these theories. In evidence scholarship, although there are some approaches that give coherence a prominent role, i.e., holistic theories of evidence evaluation and narrative models of legal proof,[2] a

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1. The literature on coherentism in law is extensive. *See*, among others, RONALD DWORKIN, LAW'S EMPIRE (1986); Neil MacCormick, *Coherence in Legal Justification*, *in* THEORIE DER NORMEN [THEORY OF NORMS] 37 (Werner Krawietz et al. ed., 1984); NEIL MACCORMICK, LEGAL REASONING AND LEGAL THEORY (corrected ed. 1994); BERNARD JACKSON, LAW, FACT, AND NARRATIVE COHERENCE (1988); AULIS AARNIO ET AL., ON COHERENCE THEORY OF LAW (1998); ALEXANDER PECZENIK, ON LAW AND REASON (1989); Robert Alexy & Alexander Peczenik, *The Concept of Coherence and Its Relevance for Discursive Rationality*, 3 RATIO IURIS 130 (1990); Jaap Hage, *Law and Coherence*, 17 RATIO IURIS 85 (2004). For a critical review of the main coherence theories of law and adjudication, see AMALIA AMAYA, THE TAPESTRY OF REASON: AN INQUIRY INTO THE NATURE OF COHERENCE AND ITS ROLE IN LEGAL ARGUMENT (forthcoming 2013).

2. For holistic approaches to evidence evaluation, *see* M. Abu-Hareira, *An Early Conception of Judicial Fact-Finding*, JURID. REV. 79 (1986); Ronald J. Allen, *The Nature of Juridical Proof*, 13 CARDOZO L. REV. 373 (1991); Ronald J. Allen, *Factual Ambiguity and a Theory of Evidence*, 88 NW. U. L. REV. 604 (1994); and Michael Pardo, *Juridical Proof, Evidence, and Pragmatic Meaning: Towards*

full-blown coherence theory of the justification of evidentiary judgments in law still remains to be developed.

There are several reasons why the project of developing a coherence theory of the justification of evidentiary judgments in law is initially attractive. First, although there are different views about what the proper role of coherence in a theory of justification is, it is widely agreed across different domains that coherence is a crucial ingredient in justification.[3] Thus it seems quite plausible that coherence is at least an important contributor to the justification of evidentiary judgments in law as well. Second, coherentism about evidentiary judgments in law enjoys a high degree of psychological plausibility. As a solid body of empirical research shows, coherence plays a critical role in reasoning about evidence in the legal context. In this respect, coherentism seems to have a distinctive advantage over probabilistic approaches to the epistemology of legal proof, which are, as is well known, highly idealized.[4] Third, coherentism is particularly well suited to model the dynamics of justification:[5] coherence theories of theory change and

Evidentiary Holism, 95 NW. U. L. REV. 399 (2000–2001). For narrative models of legal proof, *see* MacCormick, *supra* note 1; Neil MacCormick, *The Coherence of a Case and the Reasonableness of Doubt*, 2 LIVERPOOL L. REV. 45 (1980); NEIL MACCORMICK, RHETORIC AND THE RULE OF LAW (2005), at 214–237; JACKSON, *supra* note 1; and BERT C. VAN ROERMUND, LAW, NARRATIVE AND REALITY (1997). Narratives also play a critical role in some psychological models of legal fact-finding. *See* Reid Hastie & Nancy Pennington, *A Cognitive Theory of Juror Decision-Making: The Story Model*, 13 CARDOZO L. REV. 519 (1991); and WILLEM A. WAGENAAR, PETER J. VAN KOPPEN & HANS F. M. CROMBAG, ANCHORED NARRATIVES: THE PSYCHOLOGY OF CRIMINAL EVIDENCE (1993).

3. Prominent contemporary coherence theories of epistemic justification include LAURENCE BONJOUR, THE STRUCTURE OF EMPIRICAL KNOWLEDGE (1985); KEITH LEHRER, THEORY OF KNOWLEDGE (2000); Donald Davidson, *A Coherence Theory of Truth and Knowledge*, *in* SUBJECTIVE, INTERSUBJECTIVE, OBJECTIVE 137 (2001). Coherence is also claimed to be pivotal in moral rather than epistemic justification; *see* JOHN RAWLS, A THEORY OF JUSTICE (1999); ALAN H. GOLDMAN, MORAL KNOWLEDGE (1988); and MICHAEL DEPAUL, BALANCE AND REFINEMENT: BEYOND COHERENCE METHODS IN ETHICS (1993). For coherentist accounts of the justification of practical statements, *see* HENRY RICHARDSON, REASONING ABOUT FINAL ENDS (1994); SUSAN HURLEY, NATURAL REASONS: PERSONALITY AND POLITY (1989); and Paul Thagard & Elijah Millgram, *Deliberative Coherence*, 108 SYNTHESE 63 (1996).

4. On the psychological plausibility of coherence models of evidential reasoning in law, *see* Hastie & Pennington, *supra* note 2; WAGENAAR, VAN KOPPEN & CROMBAG, *supra* note 2; Dan Simon, *A Third View of the Black Box: Cognitive Coherence in Legal Decision-Making*, 71 U. CHI. L. REV. 511 (2004). For a summary of the main empirical findings to the effect that Bayesianism fails to describe accurately the inferences of legal decision makers, *see* Michael J. Sacks & William C. Thompson, *Assessing Evidence: Proving Facts*, *in* HANDBOOK OF PSYCHOLOGY IN LEGAL CONTEXTS 338–339 (David Carson & Ray Bull eds., 2d ed. 2003); Bradley D. McAuliff et al., *Jury Decision-Making in the Twenty-First Century: Confronting Science and Technology in Court*, 306–307. For a critique of Bayesian epistemology on the grounds that it involves a high degree of idealization, *see* RICHARD FOLEY, WORKING WITHOUT A NET: A STUDY OF EGOCENTRIC EPISTEMOLOGY 41 (1993); and ALVIN PLANTINGA, WARRANT: THE CURRENT DEBATE (1993), at 137–162. Theories of legal reasoning that enjoy psychological plausibility have an advantage over those that idealize away from normal human cognitive capacities insofar as they are better situated to regulate and improve legal practice. The main tenet of naturalized approaches to legal epistemology is that issues about how legal fact finders may reason, given their cognitive resources, are relevant to answering questions about how they ought to reason. On naturalized epistemology and evidence law, *see infra* Section VIII.

5. *See* Susan Haack, *A Founherentist Theory of Empirical Justification*, *in* THE THEORY OF KNOWLEDGE (L. Pojman ed., 1999).

belief revision provide us with detailed accounts of the way in which one may merge new information with old.[6] Thus a coherence theory of evidentiary judgments in law has the resources to give an account of the way in which hypotheses are revised in the course of decision making as evidence becomes available at trial. Fourth, coherence is instrumental to a number of important values that trials are meant to serve, most importantly, the value of truth.[7] Fifth, the coherence theory may be easily modified to make room for the emotional components in reasoning. Hence a coherence theory of evidentiary judgments in law has a natural place for the role of emotions in evidential reasoning in law.[8] Last, given the relevance of the coherence theory of justification of normative judgments in law, the development of a coherence theory of justification of evidentiary judgments in law would be an important step toward articulating a unified account of the justification of conclusions about both disputed questions of fact and disputed questions of law.[9]

Despite the many reasons that recommend a coherence theory of evidentiary judgments in law, the development of a plausible coherentist account of evidence and legal proof faces considerable challenges. To start with, there are some distinctive features of the legal context that need to be taken into account for coherentism to be a plausible candidate for a theory of the justification of evidentiary judgments in law. Most importantly, reasoning about evidence in law takes places within a normative institutional context that places some constraints on how coherence may be built in the course of decision making. A legal version of coherentism needs to accommodate the features that mark off legal reasoning about legal evidence and proof as a specific form of epistemic reasoning.

In addition, there are a number of problems that shed doubts upon the feasibility of explicating the justification of evidentiary judgments in law in terms of coherence. More specifically, a coherence theory of legal justification needs to provide an answer to a number of critical questions, such as what the nature of coherence is, how coherence is constructed in the course of legal decision making, whether coherence connects up with truth in the right way, which elements are relevant to assessments of coherence at trial, and how to avoid problems of circularity and conservatism when reasoning about facts in law in a coherentist fashion. Although current

6. *See* Erik Olsson, *Making Beliefs Coherent*, 7 *J.* Logic, Language & Info. 143 (1998); Erik Olsson, *Cohering With*, 50 Erkenntnis 273 (1999).

7. On the relation between coherence and truth, *see* Section VII below.

8. For a proposal as to how one may accommodate the role that emotions play in legal reasoning within a coherentist approach to evidential reasoning in law, *see* Paul Thagard, Hot Thought: Mechanisms and Applications of Emotional Cognition (2006), at 135–156. That coherence approaches to evidential reasoning in law may be easily modified to make room for emotions does not imply that the law's treatment of emotions be itself coherent. For an argument to the effect that conflicting conceptions of emotion are at work in (criminal) law, *see* Dan M. Kahan & Martha C. Nussbaum, *Two Conceptions of Emotion in Criminal Law*, 96 Colum. L. Rev. 269 (1996).

9. *See* Amalia Amaya, *Legal Justification by Optimal Coherence*, 24 Ratio Iuris 304 (2011).

versions of coherentism provide us with some of the resources necessary to address these problems, existing epistemic tools do not suffice to meet some of the objections that may be directed against a coherence theory of evidence and proof in law. Thus coherentism in general needs to be modified in order to provide a plausible account of the justification of evidentiary judgments in law.

The main aim of this paper is to articulate a coherentist approach to evidence and legal proof that has the potential to overcome the most important objections that may be raised against it. Thus this paper is meant to make a contribution to legal epistemology. However, since the problems confronting a coherence theory of evidence and legal proof are not unique to the legal realm but also affect coherence theories of justification in general, the main claims defended in this paper also have ramifications for the larger project of developing a robust coherentist epistemology.

The structure of this paper is as follows. First, I articulate a coherentist approach to evidence and legal proof according to which the justification of evidentiary statements in law is a matter of "optimal coherence." More specifically, I argue that a belief about the facts under dispute is justified if and only if an epistemically responsible fact finder might hold that belief by virtue of its coherence in like circumstances. The next four sections examine in detail the main elements of the coherence theory proposed, namely, a conception of factual coherence as constraint satisfaction, a view of coherence-based factual inference in law as inference to the best explanation, a responsibilist conception of justification, and a contextualization of the coherentist standards of the justification of evidentiary judgments in law. Next, I show that this coherentist approach has the resources to meet some of the main objections that may be raised against attempts to analyze the justification of evidentiary judgments in coherentist terms. I conclude with some general remarks on the implications of the version of coherentism proposed for the realm of a jurisprudence of evidence.

II. A COHERENCE THEORY OF EVIDENCE AND LEGAL PROOF

The main tenet of the coherence-based theory of evidence and legal proof that I argue for may be succinctly stated as follows:

> A legal decision maker's belief about the facts under dispute is justified if and only if it is optimally coherent, that is, if it is a belief that an epistemically responsible fact finder might hold as a result of a process of coherence maximization in like circumstances.

Some notions need to be clarified before we are in a position to unpack this claim.

A. Coherence

What is "coherence"? More specifically, what is the kind of coherence that is relevant to the justification of conclusions about disputed questions of fact? What is it that has to be maximized when reasoning about facts in law?

B. The Process of Coherence Maximization

Provided one has a workable conception of coherence, one still needs some account of the process whereby such coherence may be built in the course of legal decision making. In other words, it is necessary to explain the inferential process that leads fact finders to accept beliefs about the facts under dispute that are justified by virtue of their coherence.

C. Epistemically Responsible Fact Finder

Some explanation is required of what epistemic responsibility requires in the context of fact-finding in law.[10]

D. Under Like Circumstances

It is necessary to give some account of the features of the context that are relevant to coherence assessments, that is, it is necessary to explain what qualifies as "the same circumstances" for the purposes of attributing justified beliefs in legal contexts.

The next four sections examine in detail the main elements of the version of coherentism proposed.

III. FACTUAL COHERENCE AS CONSTRAINT SATISFACTION

The first element that is essential to a viable coherence theory of evidence and legal proof is a concept of coherence. A conception of coherence as constraint satisfaction developed by Paul Thagard provides a suitable framework for analyzing the kind of coherence that is relevant to the justification of evidentiary judgments in law. According to this conception, coherence is a matter of the satisfaction of a set of positive and negative constraints among a given set of elements. In order to achieve coherence, we divide up a set *E* of elements, which may be propositions or other representations, into two disjoint subsets—A, which contains accepted elements; and R, which

10. It is important to clarify that within the category of "fact finder" I mean to include all legal agents who are involved in the process of legal fact-finding and not exclusively those in charge of fact-finding at trials.

contains rejected elements—by taking into account the coherence and incoherence relations that hold between pairs of elements of *E*. For example, if a hypothesis *h1* explains *e1*, we want to ensure that if *h1* is accepted, so is *e1*. On the other hand, if *h1* is inconsistent with *h2*, then we will make sure that if *h1* is accepted, then *h2* is rejected. On this view, coherence results from dividing up *E* into *A* and *R* in a way that best satisfies the most positive (coherence relations) and negative (incoherence relations) constraints.[11]

In order to apply this approach to coherence to a particular problem, we need to specify the elements and the constraints that are relevant in a particular domain as well as the kinds of coherence involved. Thagard distinguishes six kinds of coherence, namely, explanatory, analogical, deductive, perceptual, conceptual, and deliberative. Each of these kinds of coherence is specified by means of a set of principles that state the relevant elements and constraints. In the case of explanatory coherence, which is—as I argue later—the most important contributor to the justification of evidentiary judgments in law, the principles read as follows:[12]

Principle E1: Symmetry. Explanatory coherence is a symmetrical relation, unlike, say, conditional probability. That is, two propositions *p* and *q* cohere with each other equally.

Principle E2: Explanation. 1) A hypothesis coheres with what it explains, which can be either evidence or another hypothesis; 2) hypotheses that together explain some other proposition cohere with each other; and 3) the more hypotheses it takes to explain something, the lower the degree of coherence.[13]

Principle E3: Analogy. Similar hypotheses that explain similar pieces of evidence cohere.

Principle E4: Data Priority. Propositions that describe the results of observation have a degree of acceptability on their own.

Principle E5: Contradiction. Contradictory propositions are incoherent with each other.

Principle E6: Competition. If *p* and *q* both explain a proposition and if *p* and *q* are not explanatorily connected, then *p* and *q* are incoherent with each other (*p* and *q* are explanatorily connected if one explains the other or if together they explain something).

Principle E7: Acceptance. The acceptability of a proposition in a system of propositions depends on its coherence with them.

Thus explanatory coherence is a symmetrical relation between hypotheses and evidence within a set (E1). Explanatory coherence arises out of

11. *See* Paul Thagard & Karsten Verbeurgt, *Coherence as Constraint Satisfaction*, 22 COGNITIVE SCI. 12 (1998). *See* also PAUL THAGARD, COHERENCE IN THOUGHT AND ACTION (2000), ch. 2.

12. Thagard has slightly modified the principles of explanatory coherence since their original formulation in Paul Thagard, *Explanatory Coherence*, 12 BEHAV. & BRAIN SCI. 479 (1989). Here I present them as Thagard states them in THAGARD, COHERENCE, *supra* note 11, at 43.

13. Coherence, unlike logical consistency, is a matter of degree. This seems to be, as Douven puts it, one of our most basic intuitions about the notion of coherence. *See* Igor Douven & Wouter Meijs, *Measuring Coherence*, 156 SYNTHESE 405 (2007), at 406.

relations of explanation and analogical relations between evidence and hypotheses (E2, E3). Relations of contradiction and competition give rise to incoherence (E5, E6). And the acceptability of a proposition is claimed to be a matter of its coherence with the rest of propositions within a set (E7), some of which enjoy, nonetheless, a degree of acceptability on their own (E4).[14]

Let me illustrate these principles by means of a legal example, the *Regina v. Angela Cannings* case.[15] Angela Cannings was the mother of four children, Gemma, Jason, Jade, and Matthew. Three of these children (Gemma, Jason, and Matthew) died in infancy. She was charged with the murder of both of her sons, Jason and Matthew. The charge for the murder of her first child, Gemma, did not proceed. Three of the children, including the daughter who survived, Jade, had suffered an acute or apparent life-threatening event ("ALTE"). All the ALTEs and the deaths occurred when the babies were in sole care of the mother. The prosecution alleged that the defendant had smothered both her sons, intending to kill them by obstructing their upper airways. To support that allegation it was suggested that the death of Gemma and each of the ALTEs suffered by the other children were also the result of smothering by the defendant and that these actions formed part of an "overall pattern."

The defendant, a woman described by hospital staff as a loving mother, denied harming any of her children. Her case was that the deaths were natural, if unexplained, incidents to be classified as sudden infant death syndrome (SIDS). The Crown adduced expert evidence as to the extreme rarity of three infant SIDS in one family, which suggested that smothering was the most likely diagnosis. There was no medical evidence that Mrs. Cannings had any personality disorder or psychiatric condition. Nevertheless, as was accepted without hesitation by Dr. Johnson, parents who appear to be affectionate and caring toward their children do sometimes kill them. Expert medical witnesses on behalf of the defendant supported the claim that three unexplained infant deaths in the same family do not, however,

14. Three main kinds of coherence problems may be distinguished: pure, foundational, and discriminating coherence problems. A "pure" coherence problem does not favor the acceptance of any particular set of elements. A "foundational" one selects a set of elements as self-justified. A "discriminating" coherence problem favors a set of elements, but their acceptance still depends on their coherence with other elements. Even though the abstract definition of coherence in terms of constraint satisfaction is nondiscriminating, in the sense that all elements are treated equally, Principle E4 makes Thagard's notion of explanatory coherence discriminating. This principle allows that some kinds of information be treated more seriously than others, i.e., propositions describing observations and experimental results, while remaining within a coherentist framework, for the acceptance of the favored elements is not guaranteed, but they may be rejected if they fail to cohere with the entire set of propositions. *See* THAGARD, COHERENCE, *supra* note 11, at 70–72. On the classification of coherence problems, *see* Paul Thagard, Chris Eliasmith, Paul Rusnock & Cameron Shelley, *Knowledge and Coherence*, *in* COMMON SENSE, REASONING, AND RATIONALITY 104 (R. Elio ed., 2002).

15. *R v. Cannings* [2004] EWCA (Crim) 1.

inexorably lead to the conclusion that they must have resulted from unnatural causes.

On April 16, 2002 in the Crown Court at Winchester, the defendant was convicted of murdering both her sons. On appeal the convictions were quashed. Significant new evidence was presented before the court. After the trial, further investigation was carried out into the extended family. This investigation revealed further infant deaths. One of these deaths was particularly relevant to the case. Unbeknownst to the defendant at trial, she had a half-sister, who following these convictions made herself known to the defendant's attorneys. She had three children, two of whom had suffered ALTEs. This, according to the court, supported the view that there might well be a genetic cause for the deaths of the Cannings children. A substantial body of medical research, not put before the jury but received by the Court of Appeals in evidence, further fortified the analysis that there was a reasonable possibility that the deaths of these children could be natural, even if unexplained by the present state of knowledge. If, to the contrary, the appellant had indeed killed her children—as the jury found that she had—the logical conclusion about her repeated pregnancies was that she was having babies in order to kill them. That, said the court, predicated an extraordinary state of mind contradicted by the uncontested evidence about the love and care Mrs. Cannings bestowed upon her children.

The hypothesis that Angela Cannings killed her babies explains the evidence that the babies are dead, so the hypothesis and the evidence cohere with each other, as Principle E2, Explanation, states. Although the relation between the explanans and the explanandum is asymmetrical, with hypotheses explaining evidence but not vice versa, the coherence relation between them is symmetrical, as Principle E1, Symmetry, establishes. Thus, if the hypothesis that Angela Cannings killed her babies coheres with the evidence that the babies are dead, then that evidence and the guilt hypothesis also cohere.

Principle E2 also allows the possibility of hypotheses explaining each other, as when the hypothesis that Angela Cannings was the murderer is explained by the hypothesis that she was only apparently a loving mother. This principle also says that hypotheses that together explain some other proposition cohere with each other. For example, the hypothesis that the testimony of hospital staff that there was no evidence of ill-treatment or lack of care and the hypothesis that there was a genetic condition in the Cannings family together explain the evidence that the babies showed no sign of physical interference; thus these hypotheses cohere with each other. The last part of Principle E2 says that the more hypotheses it takes to explain something, the lower the degree of coherence. For example, the hypothesis that Angela Cannings orchestrated but did not commit the murders requires multiple hypotheses that lack simplicity.

Principle E3, Analogy, states that similar hypotheses that explain similar pieces of evidence cohere. For example, if Angela Cannings had a history

of violent acts toward her children, then these cases provide analogies that make the hypothesis that the deaths of the babies resulted from deliberate infliction of harm more plausible.

The first part of Principle E4, Data Priority, says that propositions that describe the results of observations, for example, the absence of any evidence of physical violence in the postmortem medical examinations, have a degree of acceptability on their own; that is, that they have a priority in being accepted. According to Principle E5, Contradictory propositions for example, the hypothesis that the infant deaths were natural and the hypothesis that they were unnatural are incoherent with each other.

Incoherence relations may also be established between two hypotheses if they are in competition—as Principle E6, Competition, says. Two hypotheses compete with each other if they both explain a proposition but are not explanatorily connected. For instance, the hypothesis that Jason and Matthew had a genetic defect and the hypothesis that they were killed compete with each other even though these are not contradictory, for it is logically possible both that the children had a genetic defect and that they were smothered. Since both hypotheses explain the evidence of the infant deaths, but neither one explains the other, nor do they together explain the evidence, they are incoherent with each other.

Last, Principle E7, Acceptance, says that the acceptability of any proposition (e.g., that Mrs. Cannings killed her babies) depends on its coherence with the rest of the elements to which it belongs.

A theory of "factual coherence," that is, the kind of coherence that is relevant to the justification of evidentiary judgments in law, may be developed along the lines of Thagard's coherentist account of epistemic justification. Nonetheless, several modifications at all three levels—that is, the kinds of coherence involved, the constraints, and the relevant elements—are necessary to make Thagard's theory of epistemic justification applicable to the justification of beliefs in the legal context.

First, Thagard claims that epistemic justification involves the interaction of deductive, analogical, perceptual, conceptual, and explanatory coherence. This conception of epistemic justification agrees with the received tradition in epistemology, according to which epistemic justification has to do exclusively with our truth-related goals. This "intellectualist" conception of justification is, however, problematic.[16] As has been persuasively argued in the last decade, the epistemic justification of a belief does not depend only on epistemic factors but also depends, at least partly, on pragmatic considerations.[17] Our practical goals and concerns also have a bearing on

16. *See* Stephen R. Grimm, *On Intellectualism in Epistemology*, 120 MIND 705 (2011).

17. *See* CHRISTOPHER HOOKWAY, SCEPTICISM 139 (1990); Jeremy Fantl & Matthew McGrath, *Evidence, Pragmatics, and Justification*, 111 PHIL. REV. 67 (2002); Jeremy Fantl & Matthew McGrath, *Pragmatic Encroachment, in* THE ROUTLEDGE COMPANION TO EPISTEMOLOGY 558 (Sven Bernecker & Duncan Pritchard eds., 2011). For views according to which whether a subject knows something to be the case depends on his practical situation, *see* Jeremy Fantl & Matthew McGrath,

whether or not a given belief is epistemically justified: two subjects S and S´ might be alike with respect to the evidence they have in favor/against *p*, but because of differences in their pragmatic situation (e.g., the stakes), whereas S is justified in believing *p*, S´ is not.[18] That is to say, a subject's pragmatic situation may affect his justification.[19]

The justification of beliefs about the events being litigated at trial is similarly sensitive to variations in pragmatic factors.[20] Legal fact finders often take (and ought to take) practical factors into account when forming justified beliefs about disputed propositions at trial.[21] In order to account for the "pragmatic encroachment" on justification, I suggest that we modify Thagard's theory of epistemic coherence by adding "deliberative coherence,"

On Pragmatic Encroachment on Epistemology, 53 PHIL. & PHENOMENOLOGICAL RES. 558 (2007); JASON STANLEY, KNOWLEDGE AND PRACTICAL INTERESTS (2005); John Hawthorne & Jason Stanley, *Knowledge and Action*, 105 J. PHIL. 571 (2008); KEITH DEROSE, THE CASE FOR CONTEXTUALISM (2009); JEREMY FANTL & MATTHEW MCGRATH, KNOWLEDGE IN AN UNCERTAIN WORLD (2009).

18. Consider the train cases in Fantl & McGrath, *Evidence*, *supra* note 17, at 67–68.

> Train Case 1. You're at Back Bay Station in Boston preparing to take a commuter rail to Providence. You're going to see friends. It will be a relaxing vacation. You've been in a rather boring conversation with a guy standing beside you. He, too, is going to visit friends in Providence. As the train rolls into the station, you continue the conversation by asking: "Does this train make all those little stops in Foxboro, Attleboro, etc?" It doesn't matter much to you whether the train is the 'Express' or not, though you'd mildly prefer it was. He answers, "Yeah, this one makes all those little stops. They told me when I bought the ticket." Nothing about him seems particularly untrustworthy. You believe what he says.
>
> Train Case 2. You absolutely need to be in Foxboro, the sooner the better. Your career depends on it. You've got tickets for a southbound train that leaves in two hours and gets into Foxboro in the nick of time. You overhear a conversation like that in Train Case 1 concerning the train that just rolled into the station and leaves in 15 minutes. You think, "That guy's information might be wrong. What's it to him whether the train stops in Foxboro? Maybe the ticket-seller misunderstood his question. Maybe he misunderstood the answer. Who knows when he bought the ticket? I don't want to be wrong about this. I'd better go check it myself."

Intuitively, in Train Case 1, you are epistemically justified in believing that the train stops in Foxboro, but in Train Case 2, even though you have the same evidence, you are not justified in believing this proposition. Differences in pragmatic factors (e.g., the costs of being wrong) can make a difference to justification. Similar cases can be found in Stewart Cohen, *Contextualism, Skepticism and the Structure of Reasons*, 13 PHIL. PERSP. 57 (1999); Keith DeRose, *Contextualism and Knowledge Attributions*, 52 PHIL. & PHENOMENOLOGICAL RES. 513 (1992); STANLEY, *supra* note 17; FANTL & MCGRATH, KNOWLEDGE, *supra* note 17; and Jacob Ross & Mark Schroeder, *Belief, Credence, and Pragmatic Encroachment*, PHIL. & PHENOMENOLOGICAL RES. Published online March 22, 2012.

19. It is critical to note that the recognition that our non-truth-related goals are relevant to epistemic justification does not amount to conflating epistemic justification with pragmatic justification. One may impose a pragmatic condition on justification (e.g., that to be justified in believing that *p* requires the rationality of acting as if *p*) while denying that epistemic justification for *p* requires pragmatic justification for *p*. *See* Fantl & McGrath, *Evidence*, *supra* note 17, at 83–84.

20. *See* Michael Pardo, *The Gettier Problem and Legal Proof*, 37 LEGAL THEORY 45–46 (2010).

21. On the kind of pragmatic factors that bear upon the justification of fact finders' beliefs, *see infra* Section VI.

that is, the kind of coherence that is relevant to practical inference.[22] By bringing practical considerations into the computation of coherence, we thus give pragmatic factors their due in the justification of a fact finder's beliefs about the events being litigated.[23]

Second, legal reasoning is a highly institutionalized kind of reasoning. Legal reasoning about evidence takes place within a complex institutional framework. The evaluation of hypotheses about facts at trial is carried out within a normative framework that requires a skeptical stance toward the guilt hypothesis: this hypothesis may be accepted only if belief in this hypothesis is beyond a reasonable doubt and provided that the presumption of innocence is rebutted. The reasonable doubt standard and the presumption of innocence give rise to "institutional constraints," which need to be satisfied when maximizing coherence. Specifically, the presumption of innocence may be treated as a constraint that requires that hypotheses compatible with innocence be given priority in being accepted, and the reasonable doubt standard requires that the guilt hypothesis be accepted only if its degree of justification is sufficiently high to meet the standard.[24]

Third, the institutional dimension of evidential reasoning in law also puts some limits on the kind of elements that may be included within a coherence calculation. Factual accuracy is surely a momentous value of legal systems. However, the legal system is meant to serve values other than truth. Rules of evidence and procedure are in place to ensure that the complex set of values that the law aims at advancing is protected. These norms make inadmissible evidence that would be deemed relevant were we able to pursue inquiry free from institutional boundaries. Thus only some subset of the evidence available (i.e., the admissible evidence) enjoys the kind of data priority that the principles of explanatory coherence grant.[25]

22. On "deliberative coherence," *see* THAGARD, COHERENCE, *supra* note 11, at 127–132; and Thagard & Millgram, *supra* note 3.

23. The incorporation of pragmatic elements does not, however, call into question the coherentist commitments of the theory, as the acceptance of these elements depends, as much as that of any other element, on their coherence with all the other elements. *See infra* note 30.

24. Thagard also suggests that reasonable doubt might be viewed as an additional constraint on the maximization of coherence. In his view, this constraint would require that the hypothesis concerning guilt must be substantially more plausible than those concerning innocence. *See* THAGARD, HOT THOUGHT, *supra* note 8, at 366. As for the presumption of innocence, Thagard suggests that one could modify ECHO—a computational implementation of the principles of explanatory coherence—in several ways so as to account for it. My suggestion, as shown below, is to modify instead the principles of coherence, more specifically, the principle of data priority.

25. In most legal systems, the presumption of innocence, the standard of proof, and admissibility rules are the most important constraints for defining the normative institutional framework within which the explanatory evaluation of hypotheses about the events being litigated proceeds. There are, however, other rules of evidence and procedure—as well as constitutional doctrines—that might further constrain coherentist reasoning in forensic contexts. For instance, in some legal systems there are corroboration rules that would prevent the acceptance of an element unless another one is also accepted. Or, as another example, some legal systems have rules of weight that may assign some priority to some elements, in addition

In sum, in order to apply Thagard's coherence-based theory of epistemic justification to law, it is necessary to add new constraints, that is, institutional constraints, to modify some of the constraints proposed within the theory, for example, the principle of data priority, in order to limit the set of elements that may enter into the coherence calculation, as well as to include another kind of coherence, that is, deliberative coherence. The conception of factual coherence that results from these modifications may be stated as follows:

> *Factual Coherence.* Factual coherence involves the integrated assessment of explanatory coherence (fit between hypotheses and the evidence at trial); analogical coherence (fit between mapping hypotheses); conceptual coherence (fit between concepts); perceptual coherence (fit of visual interpretations and nonverbal representations); deductive coherence (fit between general principles and particular judgments); and deliberative coherence (fit between deliberative factors and the goals of adjudication).

Each of the foregoing kinds of coherence is relevant to the justification of factual propositions in law. "Analogical coherence" plays a prominent role indeed in fact-reasoning in law. As empirical research shows, some kinds of analogy are highly relevant to jurors' reasoning processes, such as the analogy to the self, for example, "if somebody threatened me in a pub, I would not go back to that pub unless I were looking for revenge; therefore, the defendant came back to the pub looking for revenge."[26] "Conceptual coherence" is also pivotal in fact-reasoning in law. This kind of coherence is critical when applying stereotypes, which is, arguably, an important part of reasoning about evidence in law.[27]

Although reasoning about evidence is certainly nondeductive, deduction has surely a role to play when drawing conclusions about disputed questions of fact. "Deductive coherence" is thus at the very least one of the kinds of coherence that are relevant for the justification of factual conclusions in law. "Perceptual coherence" is required to give an account of the fact finder's reasoning processes that involve nonverbal representations. Some of the factual inferences in law are best understood as "visual" abductions, that is, abductions that use pictorial or other iconic representations.[28] For instance, a picture of the scene of a crime may suggest a likely narrative about how the events took place. "Deliberative coherence" plays a role in determining which decision about the events at trial is best in light of the

to the priority given to propositions describing evidence as well as to the innocence hypothesis, in the coherence calculation. I thank Ho Hock Lai for helpful suggestions on this issue.

26. Hastie & Pennington, *supra* note 2, at 158.

27. Paul Thagard & Ziva Kunda, *Making Sense of People*, *in* CONNECTIONIST MODELS OF SOCIAL REASONING AND SOCIAL BEHAVIOR 3 (S.J. Read & L.C. Miller eds., 1998).

28. On visual abduction, *see* Paul Thagard & Cameron Shelley, *Abductive Reasoning: Logic, Visual Thinking and Coherence*, *in* LOGIC AND SCIENTIFIC METHODS 413 (M.L. Dalla Chiara et al. eds., 1997).

several goals that the law is meant to serve. Last, "explanatory coherence" is the most important kind of coherence in a theory of the justification of evidentiary judgments in law. As argued, some of the principles of explanatory coherence need to be modified so as to account for some features specific to factual reasoning in law. More precisely, Principles E4 and E7 should be revised to read as follows:

> *Principle E4´*: *Data Priority*. a) Propositions that describe admissible evidence at trial have a degree of acceptability on their own; b) factual hypotheses that are compatible with innocence have a degree of acceptability on their own.
> *Principle E7´*: *Acceptance*. a) The acceptability of a proposition in a system of propositions (i.e., a theory of the case) depends on its coherence with them; b) the guilt hypothesis may be accepted only if it is justified to a degree sufficient to satisfy the reasonable doubt standard.

The revised version of Principle E4 is both narrower and broader than the original one. It is narrower, as only some of the propositions that describe the results of observations, that is, those that describe admissible evidence at trial, enjoy a degree of priority. And it is also broader, for it is not only evidence propositions that should be given priority in the legal context, but hypotheses compatible with innocence also have a degree of acceptability on their own. Principle E7´ significantly restricts the propositions that may be accepted on grounds of their coherence to those that meet the applicable standard of proof.[29]

To sum up, the constraint-satisfaction approach to coherence provides a useful framework for developing a conception of coherence that is usable in the context of legal fact-finding. Some modifications are necessary in order to account for the specificities of evidential reasoning in law, most importantly, the fact that evidential reasoning in law is practical and institutional in nature. These modifications, I believe, bring the model of coherence as constraint satisfaction closer to capturing the complexities of

29. These criteria of coherence are not merely meant to be a safeguard against error; but the constraint-satisfaction approach to coherence aims to be a theory of "epistemic" justification. The distinctive feature of epistemic justification, as opposed to other kinds of justification, is its essential connection with truth. One's beliefs are epistemically justified only if and to the extent that one has reasons to think that they are likely to be true; *see* BONJOUR, *supra* note 3, at 5–8. Thus the constraint-satisfaction approach to the epistemic justification of evidentiary judgments in law is meant to provide an account of truth-conducive criteria, i.e., criteria such that if one accepts all and only those beliefs that satisfy these criteria, one has reason to believe that they are true (or at least approximately true); *see* Paul Thagard, *Coherence, Truth, and the Development of Scientific Knowledge*, 74 PHIL. SCI. 28 (2007). The constraint-satisfaction approach aims not merely at providing reasons to reject a belief as false but at giving reasons to believe it is true. In short, the constraint-satisfaction approach to coherence, insofar as it is a theory of epistemic justification, is at the service of the dual objectives of obtaining truth and avoiding error; *see* LEHRER, *supra* note 3, at 20–21. For a critique of the claim that hypotheses that maximize coherence in Thagard's sense are likely to be true, *see* Elijah Millgram, *Coherence: The Price of the Ticket*, 97 J. PHIL. 82 (2000); and ERIK J. OLSSON, AGAINST COHERENCE: TRUTH, PROBABILITY, AND JUSTIFICATION (2005), at 162–170.

legal reasoning about facts.[30] Let us now examine the issue of how factual coherence defined in this way may be established in the course of legal decision making.

IV. INFERENCE TO THE BEST LEGAL EXPLANATION

The idea of explanatory inference is the second main building block of the version of coherentism proposed.[31] Coherence may be construed in the course of legal decision making, I would argue, through an "inference to the best explanation." That is, coherence-based legal inference is at bottom an explanatory kind of inference. Inference to the best explanation is the pattern of reasoning whereby explanatory hypotheses are generated and evaluated. More precisely, this inferential pattern may be defined as follows:

$F_1 \ldots F_n$ are facts.
Hypothesis H explains $F_1 \ldots F_n$ ("explains" here is to be read in its nonsuccess sense as "would explain if true").
No available competing hypothesis explains F_i as well as H does.
Therefore H is (probably) true.[32]

30. It might be argued that rather than resulting in a modified version of coherentism, these adjustments ultimately turn the theory into something other than a coherence theory of justification. They do not. The main tenet of coherentism—and what makes it a distinctive theory of justification—is the claim that coherence generates justification. There are different roles that coherence may play in justification. Coherence may play a negative role, i.e., incoherence may defeat justification. It may also play a positive role, i.e., coherence may be a source of justification. Here two cases may be distinguished: coherence may be claimed to be a "conditional" source of justification, i.e., it may justify, but only given justification from other sources; or it may be claimed to be an "unqualified" source, i.e., it may generate justification where no justification existed before. Some versions of foundationalism give coherence a negative role; others also take coherence to be a conditionally basic source, but all deny that coherence is an unqualified source. In contrast, coherentism claims that coherence has the potential to generate justification "from scratch." It is acceptance or rejection of the claim that coherence is an unqualified source that makes a theory of justification either foundationalist or coherentist. *See* Robert Audi, *Foundationalism, Coherentism, and Epistemological Dogmatism,* 2 PHIL. PERSP. 407 (1988), 431–432; and ROBERT AUDI, THE STRUCTURE OF JUSTIFICATION (1993), at 144–145. *See also* Tomoji Shogenji, *The Role of Coherence in Epistemic Justification*, 79 AUSTRALASIAN J. PHIL. 90 (2001). The modifications proposed here are meant to give an account of the practical and institutional dimensions of evidential reasoning in legal contexts but leave the main tenet of coherentism untouched. I thank an anonymous referee for this objection.

31. For an explanationist approach to legal reasoning about facts, *see* JOHN R. JOSEPHSON & SUSAN G. JOSEPHSON, ABDUCTIVE INFERENCE: COMPUTATION, PHILOSOPHY, TECHNOLOGY (1994); Kola Abimbola, *Abductive Inference in Law: Taxonomy and Inference to the Best Explanation*, *in* THE DYNAMICS OF JUDICIAL PROOF 337 (M. MacCrimmon & P. Tillers eds., 2001); and Ronald Allen & Michael Pardo, *Juridical Proof and Best Explanation* 27 LAW & PHIL. 223 (2008); Amalia Amaya, *Inference to the Best Legal Explanation, in* LEGAL EVIDENCE AND PROOF: STATISTICS, STORIES, LOGIC 135 (H. Kaptein, H. Prakken, & B. Verheij, eds., 2009).

32. WILLIAM LYCAN, JUDGMENT AND JUSTIFICATION (1988), at 129. *See* also William Lycan, *Explanation and Epistemology, in* THE OXFORD HANDBOOK OF EPISTEMOLOGY 412–414 (P. Moser ed., 2002).

That is, an inference to the best explanation proceeds from a set of data to a hypothesis that explains the data better than any of the competing hypotheses. The mechanism we use to settle on which explanation to infer has three main stages: a process of generation, the result of which is a short list of plausible candidates; a context of pursuit, in which working hypotheses are subjected to a preliminary assessment and developed in further detail, and a process of selection, in which one of the competing hypotheses is accepted as justified.[33] Coherence considerations are crucial in all three stages of explanatory inference.

First, coherence with background knowledge helps legal fact finders narrow down the range of plausible candidates. Explanations of the facts under dispute that fail to cohere with background beliefs, for example, beliefs about human motivations, causal principles, beliefs about how crimes are usually committed, and so on, are excluded from consideration. The process of generation, guided by this coherence constraint, results in the individuation of a "base of coherence,"[34] that is, the set of hypotheses and evidence relevant to assessments of coherence, as well as the configuration of a "contrast set,"[35] that is, the set of (initially plausible) alternative theories of the case.

Next, the pursuit of an initially plausible explanation of the facts under dispute involves rendering this hypothesis the best it can be. There are three main coherence-making strategies whereby promising lines of inquiry may be developed into full-blown hypotheses. First, the coherence of a theory of the case may be enhanced by "subtraction," that is, by eliminating some beliefs. For example, faced with contradictory testimony, a fact finder may reach coherence by eliminating a belief in the credibility of one of the witnesses on the grounds that it conflicts with a hypothesis that is well supported by the available body of circumstantial evidence. Second, an "addition" strategy, whereby one or more beliefs are added, may also increase the coherence of a theory of the case.[36] For instance, suppose that a legal decision maker believes that the evidence at trial strongly supports a guilt hypothesis. However, suppose that she also believes expert testimony that conflicts with the hypothesis of guilt. There emerge, however, in the course of the trial reasons for doubting the reliability of the method used by the expert. A fact finder may increase the coherence of the theory of

33. On the generation and selection of explanatory hypotheses, *see* PETER LIPTON, INFERENCE TO THE BEST EXPLANATION (2d ed. 2004). On the relevance of the context of pursuit to explanatory reasoning, *see* Matti Sintonen & Mika Kikeri, *Scientific Discovery*, *in* HANDBOOK OF EPISTEMOLOGY 214–218 (I. Niiniluoto, M. Sintonen & J. Wolenski eds., 2004).

34. The term "base of coherence" is Raz's. *See* Joseph Raz, *The Relevance of Coherence*, 72 *B.U. L. Rev.* 273 (1992).

35. The term "contrast set" is borrowed from Josephson. *See* John Josephson, *On the Proof Dynamics of Inference to the Best Explanation*, *in* THE DYNAMICS OF JUDICIAL PROOF 293 (M. MacCrimmon & P. Tillers eds., 2001), at n.18.

36. *See* Peter Klein & Ted A. Warfield, *What Price Coherence?* 54 ANALYSIS 129 (1994) (arguing that a belief set may be rendered more coherent not only by subtracting beliefs but also by adding beliefs).

the case entailing the guilt of the accused by adding the belief that the expert testimony is not reliable. Last, coherence may also be enhanced by a "reinterpretation" strategy, which amounts to eliminating one belief and replacing it by another.[37] For instance, incriminating physical evidence found in the house of the accused can be reinterpreted, in light of evidence of police misconduct, as decreasing rather than enhancing the coherence of the theory of the case entailing guilt.[38]

Finally, coherence considerations are crucial in the context of justification. Among a set of robust theories of the case, fact finders are to select the one that is best, which, I would argue, should be understood as "best on a test of coherence." In short, I suggest that the process of coherence maximization in the context of legal fact-finding is an explanatory inference that consists of the following steps:

i) The *specification of a base of coherence*, that is, the set of factual hypotheses and relevant evidence over which the coherence calculation proceeds;
ii) The *construction of a contrast set* that contains a number of alternative theories of the case from which the most coherent one is to be selected;
iii) The *pursuit* of the alternative theories of the case by means of a number of coherence-making mechanisms;
iv) The *evaluation* the coherence of the alternative theories of the case against the criteria of coherence that have been stated above;
v) The *selection as justified* of the most coherent of the alternative theories of the case, that is, the theory of the case that best satisfies the criteria of factual coherence.

The result of this process of coherence maximization is thus the selection as justified of the theory of the case that best coheres. Let me illustrate this process in terms of the example already introduced, that is, the *Cannings* case. The first stage is to specify the base of coherence. This involves specifying the set of hypotheses and evidence over which the coherence calculation is performed: for example, H_1 Angela Cannings killed her babies; H_2 Jason's and Matthew's deaths were natural; H_3 Jason and Matthew were killed by someone else; H_4 Angela Cannings was a loving mother; H_5 There is a genetic defect in the Cannings family, and so son.

At the second stage, the trier of fact specifies the set of theories of the case. Absent evidence that indicated the possibility that the babies might have been deliberately harmed by someone other than their mother, two theories

37. The label "reinterpretation" is Conte's. *See* MARIA ELISABETH CONTE, CONDIZIONI DI COERENZA [CONDITIONS OF COHERENCE] (1999) (Italy), at 88.

38. These three ways in which coherence may be enhanced in the course of legal decision making are broadly inspired by the belief revision operations that are distinguished in the belief revision literature. *See* PETER GÄRDENFORS, KNOWLEDGE IN FLUX (1988). *See* also Erik J. Olsson, *Making Beliefs Coherent*, 7 J. LOGIC, LANGUAGE & INFO. 143 (1998); and Erik J. Olsson, *A Coherence Interpretation of Semi-Revision*, 63 THEORIA 105 (1997). For an application of belief revision theory to legal epistemology, *see* Amalia Amaya, 15 *Formal Models of Coherence and Legal Epistemology*, ARTIFICIAL INTELLIGENCE AND LAW 429 (2007).

of the case were considered. The first one, that is, "the Angela Cannings did it" theory, takes Lady Bracknell's approach as its starting point: "to lose one baby is a misfortune, two carelessness, three murder."[39] On this theory, the extreme rarity of three unexplained infant deaths in the same family grounds a powerful inference that deaths must have resulted from deliberate harm. The baby boys were smothered by someone who *appeared* to be an affectionate mother, and these deaths were related to a "pattern" of events in the family.

The second theory of the case, that is, "the natural deaths" theory, proceeds on the basis that the fact that there are deaths unexplained by our current state of knowledge does not exclude that there is a reasonable possibility that the deaths may be natural. Furthermore, it does not make sense to think that Angela Cannings had murdered her babies, for that would entail that she was becoming repeatedly pregnant with the sole purpose of killing the babies after they were born. Given that she was a loving mother and that there was no evidence that she had any personality disorder or psychiatric condition, the conclusion that she did kill her babies does not seem cogent.

The construction of the theories of the case involves determining the coherence and incoherence relations that hold between the different elements, that is, evidence and hypotheses. In order to do so, it is necessary to consider which evidence is explained by which hypothesis, whether there are any explanatory connections between competing hypotheses, whether there are relevant analogies at work, or whether there are any contradictions between propositions describing evidence or hypotheses. For example, the hypothesis that Angela Cannings did it coheres with expert evidence as to the rarity of three infant deaths in one family. And the hypothesis that there was a genetic defect in the Cannings family coheres with the hypothesis that the deaths were natural, as both are explanatorily related. By the end of this process, the fact finder would have constructed a number of theories of the case, each of which contains several hypotheses and evidence that cohere with each other, for example, the "Angela Cannings did it" and the "natural deaths" theories in this case.

At the third stage, the theories of the case under consideration are refined and revised with a view to making them the best that they can be. As argued above, there are three main strategies whereby coherence may be enhanced: additive, subtractive, and reinterpretive. For example, the fact that there was a third death in the family may be reinterpreted, in light of evidence of the possible existence of a genetic defect in the Cannings extended family, as evidence that lends support to the hypothesis that the babies' deaths were natural rather than as evidence of guilt. As a result of this reinterpretation, the degree of coherence of the natural-deaths theory is enhanced. Or adding the belief that those who appear to be

39. *See* OSCAR WILDE, THE IMPORTANCE OF BEING EARNEST; *R v. Smith* [1915] 11 Cr. App. R. 229.

affectionate mothers sometimes kill their children increases the coherence of the Angela-Cannings-did-it theory by ironing out a possible inconsistency between the hypothesis that the babies were deliberately harmed and evidence that the babies were loved and cared for by their parents. This process of pursuit ensures that each competing theory of the case is developed and seriously considered before one takes any decision as to which of them is explanatorily best.

At the fourth stage, the fact finder assesses the coherence of the alternative theories of the case by examining the extent to which they satisfy the coherence constraints. She has to consider whether the guilt theory explains the evidence at trial or whether, to the contrary, the natural-deaths theory better explains the evidence available. She will also consider which of the theories is simpler and examine whether they fit with background knowledge about analogous cases. Sources of incoherence, that is, inconsistencies and incompatibilities, have to be identified as well. In the explanatory evaluation of the theories of the case, the fact finder has to give a priority both to the evidence admitted at trial as well as to the hypotheses that are compatible with innocence. The outcome of this evaluation is to arrive at comparative judgments of explanatory coherence. Although the theory according to which someone else did it lacks evidential support, the Angela Cannings-did-it theory and the natural-deaths theory both explain a substantial part of the evidence admitted at trial.

Finally, at the fifth stage, the most coherent theory of the case is selected, provided that its degree of justification (on this account, its degree of coherence) is high enough to satisfy the applicable standard of proof. In this case, I argue that as the Court of Appeals held, the acceptance of the Angela-did-it theory was not justified. First, there existed a coherent theory of innocence compatible with the evidence at trial. Most important, the body of expert evidence showed that although having three deaths in the same family was very rare indeed, there was a reasonable possibility that the deaths were natural. Second, some subset of the evidence is best explained by the innocence hypothesis, that is, evidence that Angela Cannings cared for and loved her children. Although that evidence is also consistent with a guilt hypothesis (it is possible to be both a loving mother and a baby killer), the innocence hypothesis coheres with it in a way that the guilt hypothesis does not. In light of these reasons, a coherence analysis would not sanction the acceptance of the guilt hypothesis. On appeal, this analysis was further fortified by the introduction of new evidence (expert evidence as well as evidence of other unexplained deaths in the Cannings extended family) that significantly increased the degree of coherence of the natural-deaths theory.

Now, this version of explanatory coherentism faces the following problem: there are cases in which the theory of the case that best satisfies the criteria of coherence is nonetheless intuitively unjustified. In other words, doubts may be raised as to whether satisfaction of the criteria of coherence is sufficient for justification. Two kinds of problem cases may be distinguished:

A. Problems with the Base of Coherence

These are cases in which the input to coherence-based reasoning, that is the set of relevant evidence and hypotheses over which the calculation of coherence proceeds, is the result of defective inquiry. In cases of this sort, a theory of the case that best satisfies the criteria of coherence does so only because the fact finder has taken into account a less comprehensive body of evidence and hypotheses than the set that would have resulted if he had inquired properly about the case.

To start with, fact finders may ignore relevant evidence. For example, they may select evidence on the basis of how well it fits their working hypothesis. In fact, problems of biased selection of evidence are, as some studies have shown, recurrent in both police investigations and judicial fact-finding.[40] Furthermore, research in memory suggests that memory for information congruent with prior beliefs is better than memory for information irrelevant to prior beliefs; there is also evidence that people tend to drive their attention to encode information consistent with their expectations and are prone to seek information that supports rather than disconfirms their beliefs. This "confirmation bias" may distort the generation of the base of coherence, which, right from the beginning, would be biased toward one of the alternative explanations of the facts under dispute. For example, in the *Cannings* case, a juror who, from the start of the trial, firmly believes that the defendant is guilty, may ignore or suppress expert evidence showing that there is a reasonable possibility the deaths may be natural. Once one misconstrues the base of coherence in this way, the guilt hypothesis emerges as the most coherent—indeed, the only coherent—hypothesis.

Difficulties may also arise regarding the construction of the contrast set. Lack of imagination, prejudice, excessive reliance on the parties' configuration of alternatives, or professional routines—in the case of judicial fact-finding—may lead fact finders to ignore relevant alternatives. On the coherence-based account of legal inference outlined above, factual inference in law works by exclusion. One explanation is accepted as justified on the grounds that it is the best of a set of available alternatives on a test of coherence. But then, unless the fact finder has a reason to believe that she has ruled out the relevant alternatives to her claim about guilt/innocence, belief in the best explanatory hypothesis fails to be justified. To be sure, inferring to the best of a "bad lot" cannot yield justified beliefs.[41] At the very least, a reasonable set of alternative explanations needs to be considered for conclusions of inference to the best explanation to be justified. To continue with our example, owing to extreme repulsion at the thought of

40. *See* WAGENAAR, VAN KOPPEN, & CROMBAG, *supra* note 2, ch. 11.

41. This is the so-called "objection from the bad lot" or "problem of underconsideration" raised by van Fraassen against models of inference to the best explanation in science. *See* BAS C. VAN FRAASSEN, LAWS AND SYMMETRY (1989), at 143. For a detailed discussion of this problem and its relevance to legal fact-finding, *see* Amaya, *supra* note 31.

a mother killing her offspring, a juror may fail to give due consideration to the possibility—the seriousness of which is indicated by the evidence available—that the defendant may be guilty and, faced with what seem to him to be the only possible explanations of the deaths of the children—either they were killed by someone other than their mother or their deaths were natural—settles on the natural-deaths explanation as the most coherent explanation of the events being litigated. A juror who reasoned from such a defective contrast set would be intuitively unjustified in believing in the innocence hypothesis, despite the fact that this is the most coherent explanation of those considered.[42]

B. Problems with the Coherence Calculation

There are cases in which a theory of the case satisfies the criteria of coherence but the reason it does so traces back to certain defects in the way in which the fact finder performs the coherence calculation. In these cases, the reasoning is defective for reasons that do not have to do with the input to such a process (i.e., the evidence and hypotheses) but rather with the quality of the process as such. Fact finders may attempt to maximize coherence by inflating some alternatives while deflating others. In fact, there is substantial evidence showing that this "coherence bias" is at work in the evaluation of explanatory hypotheses at trial. In the process of decision making, subjects restructure the diverse and conflicting considerations that provide equivocal support for different decision alternatives until they reach a representation in which the chosen alternative is supported by strong considerations and the rejected one is supported by weak considerations.[43] Once the decision alternatives have been manipulated in such a way, the evaluation of those alternatives is already skewed toward one's preferred alternative.

To illustrate, a fact finder may believe that Angela Cannings is guilty and may misrepresent some aspects of the available evidence that would support the innocence hypothesis. For example, he may downplay the relevance of evidence that she was a loving mother and shed doubts over the reliability of expert evidence indicating that there is a reasonable possibility that the deaths were natural, while wholeheartedly accepting expert evidence as to the rarity of three deaths occurring in the same family, and so on. As a result, the theory of the case entailing guilt will enjoy a high degree of coherence and, to be sure, a much higher degree than the natural-deaths theory. It seems, however, that there is a strong sense in which such a belief in the guilt of the defendant would be unjustified.

42. As I argue below, such belief would be, nonetheless, justified iff it could be accepted as such by an epistemically responsible fact finder. An important distinction needs to be made between the conditions under which a fact finder is justified in believing that *p* and the conditions under which the belief that *p* is justified.

43. *See* Simon, *supra* note 4, at 520–549.

In all of these cases, there does not seem to be sufficient reason to accept as justified the outcome of the process of a coherence-driven inference. The theory of the case that best satisfies the criteria of coherence seems, however, intuitively unjustified, as it satisfies these criteria better than alternative theories only because the fact finder has reasoned about the case in a defective way. In the first kind of cases, fact finders ignore disconfirming evidence or alternative hypotheses, that is, they ignore potential defeaters of the claim that a given hypothesis is explanatorily best. In the second kind of cases, fact finders distort the set of evidence and hypotheses that threaten to defeat their claim. In both cases, the satisfaction of the criteria of coherence does not seem to be sufficient for justification. Not only should fact finders be blamed for inquiring and deliberating about the case in a defective way, but the justificatory status of the theories of the case that result from such processes of inquiry and deliberation is undermined.

To start with, the coherence that results from reasoning from a defective base by distorting the deliberation factors does not seem to be epistemically valuable. There does not seem to be anything especially worthy about believing a theory of the case by virtue of its coherence when such coherence is but the product of one's cognitive failure. Besides, even if one might attribute some merit to having a coherent system of beliefs, even in cases in which such coherence results from objectionable epistemic behavior, there is a straightforward sense in which belief in such theories is unjustified: for had the fact finder been conscientious in forming his belief, he would not have accepted such a theory of the case on the grounds that it coheres best. In other words, there seems to be a clear sense in which the fact finder ought not to believe the way he does.[44]

This problem is not unique to the version of legal coherentism proposed here but it is a serious problem for any coherence theory of justification. One may reach coherence—however such notion might be defined—by reasoning from a defective base or one may construct coherence over the course of decision making in a biased way, and the resulting system of beliefs seems unjustified despite enjoying a high degree of coherence. The coherence theory of justification needs to be modified in order to block ascriptions of justified belief in cases in which coherence-based inference is vitiated in some of these ways. The suggestion is that there is a need to impose a further condition on the process of coherence maximization for it to be justification-conferring; namely, it has to be such that an "epistemically responsible" agent could have reached such a conclusion in like circumstances.[45] Coherence irrespective of the process whereby it may be

44. *See* Jason Baehr, *Evidentialism, Vice, and Virtue*, 78 PHIL. & PHENOMENOLOGICAL RES. 545 (2009), at 549–552.

45. For a defense of this responsibilist version of coherentism, *see* Amalia Amaya, *Coherence, Justification, and Epistemic Responsibility in Legal Fact-finding*, 5 EPISTEME 306 (2008). THEORY. Similarly, Baehr argues that evidentialism needs to be modified by incorporating a condition according to which "justification supervenes on a belief that fits a person's evidence only if

reached does not yield justification: a belief is justified if and only if it could be the outcome of epistemically responsible coherence-based reasoning. In short, coherentism, I claim, needs to be supplemented with a responsibility constraint. That is to say, epistemic responsibility is a crucial component of a coherence theory of justification.[46]

An objection to this amendment of coherentism should be considered at the outset. It might be argued that supplementing coherence with an additional condition that makes epistemically responsible behavior necessary for justification renders the requirement of coherence superfluous, for coherence would typically be one of the epistemic virtues that make an agent epistemically responsible.[47] In other words, it might be argued that an agent cannot remain epistemically responsible while violating the coherence standard. If he is epistemically responsible, then he is properly guided by coherence considerations. But then, we seem to have moved from a coherentist account of the justification of evidentiary judgments in law to a responsibilist one, according to which epistemic responsibility suffices to explain justification, coherence being a mere by-product of epistemically responsible legal fact-finding. In short, the proposed amendment ultimately leads to abandoning coherentism altogether. I make two comments by way of a reply to this objection.

First, the scenario envisioned by the critic as impossible (i.e., a situation in which an agent remains epistemically responsible despite the fact that his beliefs do not live up to the coherence standard) is, to the contrary, quite possible. Indeed, there might be cases in which an agent who behaves in an epistemically responsible way does not, however, reach a coherent

this person has exercised certain intellectual *virtues* in the formation and maintenance of this belief"; Jason Baehr, *Four Varieties of Character-Based Virtue Epistemology*, SOUTHERN J. PHIL. 469 (2008), at 484–485. For a statement and defense of this responsibilist version of evidentialism, *see* Baehr, *Evidentialism*, *supra* note 44. BonJour's account of a priori justification also endorses a similar responsibility-based constraint according to which a person is a priori justified in believing a given claim just in case he has rational insight into the necessity of this claim, provided that such insights have been arrived at on the basis of "reasonably careful reflection," which is incompatible, argues BonJour, with dogmatism, bias, and other intellectual vices. *See* LAURENCE BONJOUR, IN DEFENSE OF PURE REASON (1998), at 110–115.

46. The suggestion that epistemic responsibility is an important concept in a coherence theory of justification may be found—even if not elaborated on—in some of the coherentist literature. BonJour argues that epistemic responsibility is at the core of the notion of epistemic justification; BONJOUR, *supra* note 3, at 8. Lehrer similarly argues that trustworthiness, which is the keystone of his coherence theory of justification, is a matter of intellectual virtue; *see* Keith Lehrer, *Discursive Knowledge*, 60 PHIL. & PHENOMENOLOGICAL RES. 637 (2000), at 648–650; and Keith Lehrer, *The Virtue of Knowledge*, *in* VIRTUE EPISTEMOLOGY: ESSAYS ON EPISTEMIC VIRTUE AND RESPONSIBILITY 200 (A. Fairweather & L. Zagzebski eds., 2001). Epistemic virtues, understood as broad cognitive abilities or powers rather than as traits of character one might be held responsible for, are also claimed to be relevant to a coherentist epistemology; *see* Ernest Sosa, *The Coherence of Virtue and the Virtue of Coherence*, *in* KNOWLEDGE IN PERSPECTIVE: SELECTED ESSAYS IN EPISTEMOLOGY 192 (1991). In addition, some proponents of coherence theories of moral justification as well as practical deliberation emphasize the relevance of features of the agent that make for responsible epistemic behavior to attributions of justified belief; *see* DEPAUL, *supra* note 3, at 174; GOLDMAN, *supra* note 3, at 183; and HURLEY, *supra* note 3.

47. I thank an anonymous referee for raising this objection.

system of beliefs. Cases of intellectual deficiency are to the point here.[48] One might think of a highly conscientious juror who nevertheless fails to form coherent beliefs about the facts under dispute. For instance, a juror might lack the ability to draw the relevant analogies between the competing hypotheses and the available evidence, she might lack the cognitive powers necessary to detect logical inconsistencies among the relevant propositions, she might have been taught bad epistemic standards that fail to distinguish between good and spurious explanations, or she might not have the memory resources that are required to establish coherence among the relevant body of evidence and hypotheses.[49] In any of these cases, the juror's beliefs would be unjustified, notwithstanding the fact that they result from an epistemically responsible process. Thus a juror may have done all that could reasonably be expected of her and still hold a belief that fails to satisfy the standards of coherence. Good intentions—in law as much as everywhere else—do not suffice for justification.[50]

Second, and perhaps more important, it is critical to note that even in those cases in which an epistemically responsible process does yield coherent beliefs, what makes those beliefs justified are reasons independent of epistemic responsibility. On the proposed account, justification is still a matter of coherence—although not any kind of coherence will do, it is still coherence, of the right sort, that confers justification. Considerations of epistemic responsibility do constrain the process whereby justified beliefs may be reached, but the resulting beliefs are justified on grounds independent of epistemic responsibility. That is to say, a justified belief is a belief that an epistemically responsible agent would form; however, its ultimate normative justifying ground is not provided by epistemic responsibility itself but by coherence.[51] Thus the proposed responsibilist version of coherentism should be distinguished from pure responsibilist epistemologies that seek to analyze justification exclusively in virtue terms and that make justification-conferring properties, such as coherence, derivative of virtues.[52]

To sum up, the justification of evidentiary judgments in law is a matter of coherence provided that the standards of epistemic responsibility are

48. For a discussion of cases of intellectual deficiency as counterexamples to responsibilist accounts of epistemic responsibility, *see* William Alston, *Concepts of Epistemic Responsibility*, 68 MONIST 57 (1985).

49. On the relevance of memory to coherence-based reasoning, *see* Jerry Samet & Roger Schank, *Coherence and Connectivity*, 7 LINGUISTICS & PHIL. 57 (1984).

50. For an argument to the effect that one can have unjustified beliefs that are epistemically blameless, *see* James Pryor, *Highlights of Recent Epistemology*, 52 BRIT. J. PHIL. SCI. 95 (2001), at 114–116.

51. For an argument to the effect that just as the notion of "what a virtuous person would do" is insufficient to explain rightness, the notion of a belief should be justified on grounds independent of epistemic virtue, *see* Roger Crisp, *Virtue Ethics and Virtue Epistemology*, 41 METAPHILOSOPHY 22 (2010).

52. For a defense of a pure virtue epistemology that makes the concept of justified belief derivative from the concept of a virtue, *see* LINDA ZAGZEBSKI, VIRTUES OF THE MIND (1996).

properly respected.[53] Coherence by itself is insufficient to explain justification; it is only the kind of coherence that could result from an epistemically responsible process of belief formation that confers justification. This, I have argued, does not amount to abandoning coherentism altogether, as it is still coherence, properly constrained by considerations of epistemic responsibility, that yields justification. I have already explained in detail what coherence demands as well as the process whereby it may be built into the process of legal decision making. I turn now to examining the requirement of epistemic responsibility, which is the third main element of the proposed coherentist theory of evidence and legal proof.

V. COHERENCE AND EPISTEMIC RESPONSIBILITY

I have argued above that the basic mechanism whereby judgments of coherence are made involves the generation of several alternatives and the selection among them of the one that coheres best. On this view, how well legal fact finders behave when generating and evaluating alternatives is relevant to determining how much reason they have for accepting as justified a theory of the case on the grounds that it is the most coherent one available. Thus, whether a fact finder is justified in accepting a hypothesis about the events being litigated is a matter that, at least in part, depends on whether she has considered all the relevant alternatives and assessed their coherence in a proper way.

This coherentist picture places the trier of fact, who seeks out coherence, at the center of a theory of justification. Coherence (and therefore justification) does not come for free, it is something that has to be earned. A coherentist legal epistemology turns out to be inextricably linked with a "responsibilist" view of justification, that is, the view that a belief is justified

53. Thus the requirement of epistemic responsibility is not claimed to be a defining feature of justification. Rather, it is meant to play a constraining role: justification is a matter of coherence, but for reasons of coherence to generate justification, they have to operate against the background of epistemically responsible agency. Similarly, Baehr articulates and defends a modified version of evidentialism according to which justification is a matter of the possession of good epistemic reasons, provided that if a person's evidential situation significantly involves her agency, the person functions in a manner consistent with intellectual virtue. On this approach, as in the approach defended here, virtuous functioning is not a justifying factor or a necessary condition of justification but plays a background or constraining role. However, Baehr's reasons for giving virtuous activity a constraining role in a theory of epistemic justification rather than making it a necessary condition of justification are not related either to cases in which epistemic responsibility and epistemic justification seem to come apart (e.g., cases of intellectual deficiency) or to a rejection of the view that the notion of justified belief is derivative from that of intellectual virtue. Instead, his proposal is motivated by cases of "brute" or "passive" justification, i.e., cases in which justification results primarily from the mere brute functioning of the subject's cognitive mechanisms. In such cases, argues, Baehr, virtuous agency is not involved in any way, and this shows that intellectual virtue cannot be a necessary condition of justification. *See* Baehr, *Evidentialism, supra* note 44, at 558–561.

if it might be the product of an epistemically responsible action.[54] The notion of "optimal coherence" is meant to capture and further develop this responsibilist dimension of coherentist justification. Optimal coherence—as defined before—is the kind of coherence that results from epistemically responsible coherence-based reasoning. An account is now due of what epistemic responsibility requires in the context of legal fact-finding.

We may distinguish between two main accounts of epistemic responsibility: a "deontic" approach and an "aretaic" approach. On a deontic approach, epistemic responsibility is a matter of duty fulfillment. That is to say, one is epistemically responsible to the extent that one complies with one's epistemological duties.[55] According to the aretaic conception of epistemic responsibility, one is epistemically responsible insofar as one properly exercises a number of intellectual virtues.[56] Epistemically responsible action amounts, on this view, to intellectually virtuous behavior.[57] I endorse an irenic approach to the epistemic responsibility of legal fact finders, one that combines deontic and aretaic elements. The suggestion is that legal fact finders are epistemically responsible to the extent that they both comply with certain epistemological duties and exercise a number of intellectual virtues.[58] Below I give an account of the epistemological duties whose satisfaction is required for the justification of evidentiary statements in law and of the intellectual virtues that mark off good epistemic behavior in the context of legal fact-finding.[59]

There are several epistemic duties compliance with which is necessary in order to conduct legal fact-finding in an epistemically responsible way. Legal fact finders have a duty to believe all and only the propositions that are supported by the evidence available.[60] Thus triers of fact have a duty to withhold belief from what is not supported by the evidence at trial as well as

54. *See* Hilary Kornblith, *Justified Belief and Epistemically Responsible Action*, 92 PHIL. REV. 33 (1983). The relation between epistemic responsibility and epistemic justification is a central issue in contemporary epistemology. For a useful survey of the different views on this topic, *see* James Pryor, *Highlights of Recent Epistemology*, 52 BRIT. J. PHIL. SCI. 95 (2001).

55. *See* Richard Feldman, *Epistemic Obligations* 2 PHIL. PERSP. 236 (1988); Richard Feldman, *Epistemological Duties*, *in* THE OXFORD HANDBOOK OF EPISTEMOLOGY 362 (P. Moser ed., 2002).

56. For a defense of a virtue approach to the notion of epistemic responsibility, *see* JAMES A. MONTMARQUET, EPISTEMIC VIRTUE AND DOXASTIC RESPONSIBILITY (1992); and LORRAINE CODE, EPISTEMIC RESPONSIBILITY (1987).

57. There are different views in the literature regarding the traits of character that mark off intellectually virtuous behavior and how to classify them. *See* James A. Montmarquet, *Epistemic Virtue*, 96 MIND 482 (1987); Neil Cooper, *The Intellectual Virtues*, 69 PHILOSOPHY 459 (1994); ROBERT C. ROBERTS & W. JAY WOOD, INTELLECTUAL VIRTUES: AN ESSAY IN REGULATIVE EPISTEMOLOGY (2007).

58. Alternatively, one could endorse an aretaic approach and define all deontic concepts in terms of virtues. Linda Zagzebski provides an exemplary account of how this might be done. *See* ZAGZEBSKI, *supra* note 52, at 232–259. For an attempt to define the epistemic responsibility of legal fact-finders exclusively in aretaic terms, *see* Amaya, *Coherence, Justification, and Epistemic Responsibility in Legal Fact-finding*, *supra* note 40, at 311–14.

59. This account is not meant to be exhaustive but merely illustrative of the kinds of duties and virtues that are relevant to evidential reasoning in law.

60. *See* Feldman, *Epistemological Duties*, *supra* note 55, at 367–369.

a duty to believe when they do have good reason for so believing. In addition to the duty to believe as the evidence at trial dictates, fact finders also have a duty to gather additional evidence about propositions that are less than certain on the evidence available.[61] That is to say, fact finders are expected to seek out the evidence necessary to find out about the events at trial.[62] Triers of fact also have a duty to search actively for alternative hypotheses that have the potential to explain the events being litigated. In short, fact finders have a duty to behave in ways that will increase their chances of getting at the truth about the facts under dispute.[63]

The proper exercise of a number of intellectual virtues is also needed to live up to the standards of epistemic responsibility that govern legal fact-finding. Responsible legal fact-finding requires the exercise of the virtues of the good inquirer, such as thoroughness, sensitivity to detail, the ability to recognize salient facts, perseverance in following a line of investigation, diligence, the courage to entertain hypotheses that call in question deeply held beliefs, the ability to recognize reliable authorities, and open-mindedness in collecting and evaluating evidence. Fact finders should also exhibit a number of epistemic virtues when deliberating about the facts of the case. They ought to be impartial, that is, they are to assess the different alternatives on their merits and seriously consider the possibility that each might obtain. The virtues of open-mindedness and self-criticism are also critical here. Triers of fact ought to be open to new alternatives and ready to consider objections to their own views as well as to change their views in the face of new evidence or good arguments that might emerge in the course of deliberation. An epistemically responsible fact finder also displays the virtue of intellectual sobriety when deliberating about the case: she does not rush into judgment but engages in the evaluation of the competing hypotheses in a temperate and careful manner. Intellectual courage to face and answer criticism is necessary for virtuous deliberation as well. Finally, intellectual

61. *See* Richard J. Hall & Charles R. Johnson, *The Epistemic Duty to Seek More Evidence*, 35 AM. PHIL. Q. 129 (1998). Critically, the duty to seek out more evidence requires fact finders to search also for second-order evidence, i.e., evidence about the merits of one's evidence. On the epistemic significance of second-order evidence, *see* D. Christensen, *Higher-Order Evidence*, 81 PHIL. & PHENOMENOLOGICAL RES. 185 (2010); and Richard Feldman, *Respecting the Evidence*, 19 PHIL. PERSP. 95 (2005). It is also important to notice that at least in the context of legal fact-finding, issues concerning the sufficiency of one's first-order as well as second-order evidence not only are epistemological but also involve an important moral and political component. *See* ALEX STEIN, FOUNDATIONS OF EVIDENCE LAW (2005), at 118–133.

62. This assumes a more active view of jurors than the one that is currently in place in most jury systems. For an argument in support of the view that triers of fact ought to be allowed to play a more active role, *see* John Jackson, *Analyzing the New Evidence Scholarship: Towards a New Conception of the Law of Evidence*, 16 OXFORD J. LEGAL STUD. 309 (1996), at 326.

63. There are different views about the kind of epistemic duties we have. A narrow conception of our epistemic duties is that they are exclusively duties to have a particular cognitive attitude (belief, disbelief, or suspension of judgment) toward a particular proposition. A broader conception is that they are duties to engage in behavior that will maximize one's number of true beliefs. A broader conception, I submit, best characterizes legal fact finders' epistemic duties.

autonomy, that is, a capacity to develop one's own views, and intellectual humility, which involves the recognition of one's fallibility, are also necessary for reasoning about the facts under dispute in an epistemically responsible way.

To sum up, I have argued that the justification of conclusions about disputed questions of fact is a matter of optimal coherence. That is, a belief about the facts under dispute is justified if it belongs to the theory of the case that an epistemically responsible fact finder might hold by virtue of its coherence in like circumstances. Now, on this approach to the justification of evidentiary judgments in law, justification is the product of the effort of the fact finder who strives after coherence in an epistemically responsible manner. But, one may ask, how much work does one need to do in order to reach justified beliefs? What counts as a "reasonable" range of alternatives in the legal setting? How much evidence-seeking is necessary for epistemically responsible legal fact-finding? When is the final outcome coherent enough for the purposes of legal justification? Without an answer to these questions the proposed account of the justification of evidentiary conclusions in law remains hopelessly vague.

The suggestion that I want to pursue is that due attention to context gives us an answer to the foregoing questions. What qualifies as epistemically responsible behavior, and therefore the severity of the standards of justification, depends in an important sense, I shall argue, on a number of contextual factors. The claim is thus that contextual factors determine the appropriate level of care, that is, the appropriate level of epistemic responsibility that is required for legal justification. In other words, a coherentist approach to the justification of factual conclusions in law needs to be contextualized. The next section suggests some ways in which this might be done.

VI. COHERENCE IN CONTEXT

So far I have considered three elements of the coherence theory of evidence and proof: a concept of coherence, an explanationist account of coherence-based inference, and the idea of epistemic responsibility. A fourth ingredient is the recognition of the relevance of context to a coherentist epistemology. Assessments of coherence (and incoherence) are highly sensitive to context. Joseph Margolis writes:

> Context is the clue, however. Faced with an apparently non-coherent (not obviously coherent or incoherent) array of human thought and behavior or work, we search for a plausible or likely context of human purposes within which a given set of dreams, thoughts, plans, endeavors, theories, stories, paintings, statements, utterances, fears, commitments, hopes, or the like may be shown to be relevantly coherent or incoherent.[64]

64. Joseph Margolis, *The Locus of Coherence*, 7 LINGUISTICS & PHIL. 3 (1984), at 23.

Thus a critical part of the process whereby coherence is built consists in seeking out a relevant context in which assessments of coherence may be made. I suggest that we account for the context-sensitivity of judgments of coherence by "contextualizing" coherentism. Contextualism, that is, the view that standards of epistemic justification vary with context, is neutral as to the analysis of justification.[65] In other words, it is not a theory about the nature of justification; rather, the contextualist tenet is that the severity of the standards of justification, however they might be analyzed, shifts with context. Thus there is room for a contextualized version of different accounts of justification. The suggestion is that coherentism should be contextualized. A contextualized version of coherentism would take it that whether a belief is justified is a matter of coherence but that how severe this coherentist standard should be is a contextually variable matter.[66]

Now, more precisely, what is it that shifts with context according to a contextualized version of coherentism? There are three dimensions upon which the severity of the coherentist standards of justification depends: i) the *threshold of justification*, that is, how strongly beliefs must cohere with one another to be justified; ii) the *conditions of membership to the contrast set*, that is, how many alternatives are relevant and should be ruled out for a belief in one of them to be justified; and iii) *the domain of coherence*, that is, how broad the domain should be within which coherence ought to be sought. The higher the threshold, the larger the contrast set; and the broader the domain of coherence, the more severe the standards of justification are.[67] The main tenet of the contextualist approach to the coherentist standards for the justification of factual conclusions in law proposed here is that whether a theory of the case is coherent enough to be justified, how many alternative explanations of the facts under dispute ought to be ruled out, and what the appropriate domain of coherence is (i.e., how many hypotheses and how much evidence ought to be factored in the coherence calculation) shift with context. Contextual features help set the severity of the coherentist standards of legal justification by fixing the appropriate threshold, picking the relevant contrast set, and individuating the base or domain of coherence.[68]

65. Keith DeRose, *Contextualism: An Explanation and Defense*, *in* THE BLACKWELL GUIDE TO EPISTEMOLOGY 187 (J. Greco & E. Sosa eds., 1999), at 190.

66. In suggesting that coherentism ought to be contextualized, I depart from other accounts according to which contextualism is conceived as an account of justification alternative (and superior) to coherentism. For a defense of such a view, *see* David K. Henderson, *Epistemic Competence and Contextualist Epistemology: Why Contextualism Is Not Just a Poor Person's Coherentism*, 91 J. PHIL. 627 (1994).

67. *See* Jane Duran, *A Contextualist Modification of Cornman*, 16 PHILOSOPHIA 377 (1986) (arguing that a contextualization of the justifying set is necessary for the coherence theory to be descriptively adequate and psychologically plausible). However, this is just one of the dimensions along which coherence theories need to be contextualized, the other two being the degree of coherence required for justification and the relevant contrast set.

68. Of course, different views about which parameters shift with context will yield different contextualized versions of coherentism. For example, Schaffer argues that what shifts with context is not the threshold of justification but rather the set of relevant alternatives. An

Let us be more specific about which features of the context are relevant for the justification of evidentiary statements in law and how they fix the severity of the coherentist standards of legal justification. First, the *stakes* of the decision play a chief role in determining how severe the standards of justification ought to be. When the costs of being wrong are very high, a strict standard of justification is in order.[69] The relevance that the importance of being right about a certain matter has to attributions of justified belief is recognized in law through the standards of proof. The threshold of justification of decisions in civil proceedings is typically lower than what is required for justification in a criminal proceeding. Furthermore, the very same standards of proof are context-dependent. For instance, what counts as reasonable doubt varies with the seriousness of the criminal offense.[70] On a coherentist interpretation of these standards, this means that how much coherence is required for the justification of factual claims in law is context-dependent. Although a particular explanation of the facts under dispute may be coherent enough to justify a finding for the plaintiff in a civil case, it may fall below the threshold of coherence required to find against the defendant in a criminal case. And how many alternatives ought to be ruled out for a belief in a guilt hypothesis to be justified beyond a reasonable doubt by virtue of its coherence also depends on the gravity of the criminal charge. In cases involving serious criminal offenses, few explanations may be properly ignored for an inference to the most coherent of them to yield justified beliefs. The stakes are thus crucial for determining how demanding the coherentist standards of justification should be in legal contexts.[71]

application of this contextualist view to coherentism would result in a contextualized version of coherentism according to which it is only the contrast set, rather than the degree of coherence required for justification, that varies with context. *See* Jonathan Schaffer, *What Shifts? Thresholds, Standards, or Alternatives? in* CONTEXTUALISM IN PHILOSOPHY: KNOWLEDGE, MEANING, AND TRUTH 115 (Gerhard Preyer & Georg Peter eds., 2005).

69. The relevance of the importance of being right about a certain matter for the severity of the standards of justification is often pointed out in the contextualist literature. *See* MARK TIMMONS, MORALITY WITHOUT FOUNDATIONS: A DEFENSE OF ETHICAL CONTEXTUALISM (1999), at 211; David B. Annis, *A Contextualist Theory of Epistemic Justification*, 15 AM. PHIL. Q. 213 (1978), at 215; Robert J. Fogelin, *Contextualism and Externalism: Trading in One Form of Skepticism for Another*, 10 PHIL. ISSUES 43 (2000), at 48; David Lewis, *Elusive Knowledge*, 74 AUSTRALASIAN J. PHIL. 549 (1996), at 556; and MICHAEL WILLIAMS, PROBLEMS OF KNOWLEDGE: A CRITICAL INTRODUCTION TO EPISTEMOLOGY (2001), at 161. *But see* Frederick I. Dretske, *The Pragmatic Dimension of Knowledge*, 40 PHIL. STUD. 363 (1981), at 375 (arguing that the importance of what is justified should not affect what counts as an adequate justification).

70. Erik Lillquist, *Recasting Reasonable Doubt: Decision Theory and the Virtues of Variability*, 36 U.C. DAVIS L. REV. 85 (2002–2003) (arguing that a flexible standard of reasonable doubt that varies depending on the costs of error associated with each case, should be preferred to a fixed standard of reasonable doubt requiring the same level of certainty across all criminal cases).

71. Cf. STEIN, *supra* note 61 at 179 (arguing that the reasonable doubt standard should apply equally in all cases, regardless of the severity of the offense on trial, as there is a distinct "moral harm" in all wrongful convictions that, unlike the bare harm that an erroneous conviction produces, stays invariant across different crimes). On the claim that the violation of the right not to be convicted if innocent constitutes a special kind of harm (i.e., a "moral" harm) over

Second, the *role* that the legal decision maker occupies also determines the "level of scrutiny," as Robert Fogelin puts it, which is appropriate in a particular context of justification.[72] Fact-finding in law involves different legal actors, for example, police, prosecutors, trial judges, jurors, and appellate judges. A higher level of scrutiny is appropriate for different roles. Although an explanation of the facts under dispute that entails guilt might be coherent enough for the purposes of filing a criminal charge, it might not be so in the context of jury decision making. How much evidence and how many alternative hypotheses need to be factored into a coherence calculation also depends on the institutional role the fact finder occupies. The domain within which coherence ought to be sought increases the more the decision task inherent to a particular role is likely to affect the parties involved (in ways that cannot be remedied later in the process).

Third, various *goals* are relevant to different contexts of justification and relative to which a belief may be properly characterized as justified.[73] In law, a complex set of goals, which the rules of evidence are meant to protect, have a bearing on questions of justification. The goals of inquiry help determine the appropriate domain of coherence. For example, prejudicial evidence ought to be excluded from the base of coherence in legal contexts, whereas it would be appropriate and indeed required to include it in contexts in which, unlike the legal one, the only goal of inquiry is the acquisition of true beliefs. To illustrate the point, the mass of evidence that is relevant to historical research on a controversial murder case (e.g., the famous Sacco-Vanzetti case) is different from the evidence on the basis of which a belief about the guilt of the defendant may be justified, given that values other than truth are at stake in the legal context.

Fourth, different *methodological constraints*, which determine the direction of inquiry, are in place in different contexts.[74] What is at stake here, as Michael Williams puts it, is not so much the "level" of scrutiny as the "angle" of scrutiny. He writes, "Within the practice of doing history, we can be more or less strict in our standards of evidence. But some questions have to be set aside for us to think historically at all."[75] Similarly, the fact that a question of *legal* justification is being raised constrains the range of alternatives that ought to be seriously considered. The following example by Walter Sinnott-Armstrong vividly illustrates the point: "Suppose that a desperate defense

and above the bare harm a person suffers through punishment, *see* RONALD DWORKIN, A MATTER OF PRINCIPLE (1985), at 80.

72. *See* ROBERT FOGELIN, WALKING THE TIGHTROPE OF REASON: THE PRECARIOUS LIFE OF A RATIONAL ANIMAL (2003), at 102. For some defenses of the claim that expertise and one's occupation are factors that bear upon the question of how severe the standards of justification should be, *see* TIMMONS, *supra* note 69, at 211; and Annis, *supra* note 69, at 213.

73. Timmons argues that whether a belief is justified varies in ways that depend upon one's goals and purposes. *See* TIMMONS, *supra* note 69, at 192–193.

74. The relevance of methodological constraints to attributions of justified belief is pointed out by Williams. *See* WILLIAMS, *supra* note 69, at 160.

75. *Id.* at 160. *See also* Michael Williams, *Is Contextualism Statable?* 10 PHIL. STUD. 80 (2000), at 84.

attorney argues, 'Perhaps we are all deceived by a demon.' Surely the judge and jury could attend to this statement and yet properly ignore it by not letting it affect their belief in the defendant's guilt."[76] Indeed, although the possibility that we are all deceived by a demon is a relevant possibility in the context of epistemological inquiry, it can be properly ignored in the context of legal inquiry.

Methodological constraints also contribute to determining the domain of coherence by requiring that some elements be included and apportioned a special weight in the coherence calculation. For example, evidence at trial has to be taken into account and given a special priority for one to be engaged in legal reasoning. Similarly, the irrelevance of other considerations (e.g., character evidence) must also be taken for granted for one to argue from a legal point of view. Failure to comply with these methodological constraints when performing coherence-based reasoning about facts in legal contexts would amount to changing the nature of inquiry altogether.

Fifth, the level of scrutiny that is reasonable in a particular context depends on the *resources* available. Legal fact-finding works under severe time constraints and has limited institutional resources at its disposal. These constraints limit the domain within which coherence ought to be sought and the range of alternatives that need to be considered when reasoning about evidence in law, as opposed to the much broader inquiry that would be appropriate in other contexts, like, for example, the scientific context.

Last, justificatory practices take place in a *dialectical* context that constrains what may be taken for granted and what, to the contrary, is a relevant alternative that needs to be ruled out for one's claim to be justified.[77] The fact of raising a possible defeater triggers a higher level of scrutiny. For example, an expert's testimony may not be taken at face value as soon as doubts are raised about the credibility of the expert. Simply mentioning a possible defeater to one's claim, no matter how remote, is not, however, enough to raise the standards of justification.[78] Only those alternatives of which we have some reason to believe that they obtain or at least some positive reason to doubt that they are false are relevant, and should thus be attended, in a particular context.[79] For example, consider a witness, John, who testifies to the effect that he saw the defendant committing the crime. The possibility that John was hallucinating that the defendant committed the crime is a possibility that the fact finder may properly exclude from

76. Walter Sinnott-Armstrong, *What's in a Contrast Class?* 62 ANALYSIS 75 (2002), at 76.

77. Williams argues for the relevance of dialectical features to attributions of justified belief. *See* WILLIAMS, PROBLEMS, *supra* note 69, at 161.

78. *See, e.g.*, Lewis, *supra* note 69, at 559. According to Lewis's "rule of attention," those possibilities that one is in fact attending to in a context cannot be properly ignored.

79. This view has its roots in Peirce's writings and it also enjoys some popularity now, particularly among the advocates of "inferential" views of contextualism. For instance, Annis says that for justification it is necessary to meet only those objections that are an expression of a "real" doubt. *See* Annis, *supra* note 69, at 214. *See also* WILLIAMS, PROBLEMS, *supra* note 69, at 161.

the contrast set. However, once the defense attorney claims that at the moment of the crime John was under the effects of a drug that may cause hallucinations as a side effect, this possibility becomes a relevant possibility—as long as there is some positive reason to believe that it might obtain—that needs to be included within the contrast set. Thus dialectical constraints shape the contrast set by making some alternatives salient.

The foregoing contextual features, among others, determine the severity of the coherentist standards of legal justification. In so doing, they establish what is required for responsible action when reasoning about evidence in law. In other words, they set a "threshold of termination" of the process of coherence maximization by determining when it is legitimate to stop the quest for coherence.[80] Once fact finders have reached that point by building coherence among the hypotheses and evidence that are relevant in the particular context of justification, they may be said to have done all that can be expected of them to do, that is, all that is required for justification.

To recapitulate, I have argued that a legal decision maker's belief about the facts under dispute is justified if it could result from an epistemically responsible process of coherence maximization. Coherence is a matter of the satisfaction of a number of positive and negative constraints among the relevant hypotheses and evidence at trial. Such coherence is constructed in the course of legal decision making by means of an inference to the best explanation. This explanatory inference yields justified beliefs provided that some standards of epistemic responsibility are complied with. Just what these standards require is a matter that depends, I have claimed, on context. In short, this coherentist approach to the standards of justification of evidentiary judgments in law is based on a constraint-satisfaction conception of coherence, an explanatory view of coherence-based legal inference, and a responsibilist approach to justification that recognizes the relevance of context to judgments of coherence and justification. In the next section, I examine how the proposed coherentist account of the justification of conclusions about disputed questions of fact deals with a number of objections that threaten to undermine the case for a coherence theory of evidence and juridical proof.

VII. SOME OBJECTIONS TO A COHERENCE THEORY OF EVIDENCE AND LEGAL PROOF

A number of objections may be raised against attempts to analyze the justification of evidentiary judgments in law in terms of coherence. At bottom,

80. The label of "threshold of termination" is borrowed from discourse theorists Beaugrande and Dressler, who define it as the place at which "the comprehension and integration of the text is deemed as satisfactory." *See* ROBERT A. DE BEAUGRANDE & WOLFGANG U. DRESSLER, INTRODUCTION TO TEXT LINGUISTICS (1981), at 43.

these problems are but particular instances of the main objections that have been traditionally raised against coherence theories of epistemic justification. A satisfactory response to these problems is necessary for the coherence theory to be a plausible candidate for a theory of the justification of evidentiary judgments in law. In what follows, I suggest some ways in which the proposed theory of legal justification as optimal coherence may meet the objections that may be leveled against coherence theories of evidence and proof in law.

A. The Problems of Vagueness

One common problem of coherence theories is vagueness.[81] Holistic approaches to evidence and legal proof appeal to the notion of coherence as a key standard for determining the "goodness" of a particular explanation of the facts under dispute. However, these theories do not furnish an articulated account of the notion of coherence that is relevant to the justification of conclusions about disputed question of fact. Unlike other coherence-based approaches to evidentiary reasoning in law, the theory of optimal coherence is based on a notion of coherence as constraint satisfaction that provides a set of reasonably clear criteria for assessing the coherence of alternative theories of the case.

In addition, holistic theories of juridical proof are also vague in another respect; namely, they fail to give an account of the inference patterns that lie behind coherence-based legal inference. These theories urge legal decision makers to decide on the guilt or innocence of the defendant on the grounds of the story that makes more sense as a whole. However, the inferential process whereby fact finders are to establish coherence in the course of legal decision making remains unspecified. In contrast, the model proposed puts forward a view of coherence-based factual inference as inference to the best explanation. On this view, fact finders ought to generate and subsequently pursue a number of plausible candidates (i.e., theories of the case) and then select from among them the one that best satisfies the criteria of coherence. Thus the reasoning processes whereby fact finders may seek coherence among hypotheses and evidence in law no longer seem mysterious but particular instances of recognizable patterns of explanatory reasoning.

B. The Dangers of the Case-as-a-Whole Approach

A coherence theory of evidence and legal proof is committed to an unrestricted version of holism that takes the legal decision maker's whole system of beliefs to bear upon the justification of evidentiary judgments in law. As a

81. *See* Richard Fumerton, *A Critique of Coherentism*, *in* THEORY OF KNOWLEDGE: CLASSICAL AND CONTEMPORARY READINGS 247–250 (L. Pojman ed., 2d ed. 1999).

result, it does not provide enough assurance against decisions being taken on grounds other than the beliefs that one is warranted in accepting on the basis of the evidence at trial.[82] The theory of optimal coherence overcomes this problem by embracing a contextualist approach to the standards of legal justification. On this view, the set of beliefs over which the coherence calculation proceeds is not the whole system of beliefs but rather a subset that is shown to be relevant in the particular context. Features of the context, which critically include the legal principles that govern legal decisions, determine the appropriate size of the domain within which coherence is to be sought in a particular instance of legal justification. Thus this contextual strategy averts the dangers involved in holism by making the justification of evidentiary judgments in law depend exclusively on those considerations that are relevant in the legal context.

C. The Coherence Bias

It has been argued against coherence theories of epistemic justification that they have an in-built conservative tendency, in that they make fit with a preexistent body of beliefs a condition of justification. Coherence theories—so the objection goes—encourage us to distort or dismiss observational beliefs that do not cohere with accepted bodies of beliefs.[83] Similarly, it might be argued, a bias toward one's preferred theory of the case seems to be ingrained in a coherence-based theory of fact reasoning. Legal decision makers, in an effort to preserve coherence, might stick to the views of the case they already hold rather than change them in light of new conflicting evidence. As empirical research shows, people have a tendency to interpret new incoherent evidence erroneously so as to make it fit with their previous beliefs and to discount it as unbelievable or unacceptable if it conflicts with their accepted views.[84] Coherence theories seem to sanction rather than contain the effects of this psychological tendency.

Coherentism, however, properly understood, can be shown to have the resources to meet the charge of conservatism. As Williams argues, coherence theories can be charged with conservatism only if we overlook the importance of "epistemic" or "second-order" beliefs, that is, beliefs about techniques for acquiring and rejecting beliefs, beliefs about the conditions under which beliefs of certain kinds are likely to be true, and so on. To

82. *See* MICHELLE TARUFFO, LA PROVA DEI FATTI GIURIDICI: NOZIONI GENERALI [THE PROOF OF LEGAL FACTS: GENERAL NOTIONS] (1992) (Italy), at 285; William Twining, *Necessary but Dangerous? Generalizations and Narrative in Argumentation about "Facts" in Criminal Processes, in* COMPLEX CASES: PERSPECTIVES ON THE NETHERLANDS CRIMINAL JUSTICE SYSTEM 80 (M. Malsch & J.F. Nijboer eds., 1999); Doron Menashe & Mutal E. Shamash, *The Narrative Fallacy*, 3 INT'L COMMENT. EVIDENCE article 3 (2005). The risks involved in holistic processing are quite real, as empirical work has shown. *See* Simon, *supra* note 4.

83. *See* Michael Williams, *Coherence, Justification, and Truth*, 34 REV. METAPHYSICS 243 (1980).

84. *See* Dan Simon, *A Psychological Theory of Legal Decision-Making*, 30 RUTGERS L.J. 1 (1998), at 88–89.

reject out of hand carefully made observations would amount to calling into question all sorts of beliefs having to do with the reliability of observation. And this would mean that the credibility of many other beliefs would be questioned as well.[85] Hence the objection of conservatism looses much of its force against a coherence theory that includes not only first-order beliefs but also second-order beliefs among the set of beliefs whose coherence yields justification.

Besides, the theory of optimal coherence has two additional safeguards against conservatism. First, this theory gives priority to the evidence at trial over the rest of the elements that enter into the coherence calculation. It is, of course, still possible that evidence be discarded if doing so maximizes the coherence of the whole set. But this is as it should be; after all, there are sometimes good reasons for doubting the reliability of the evidence offered at trial. However, the theory ensures that unless coherence overwhelmingly requires the rejection of evidence, evidence at trial would be accepted and thus that it would have a momentous role in determining which hypothesis about the facts under dispute may be accepted as justified. Second, the theory of optimal coherence attributes justification only to those beliefs that could result from an epistemically responsible process of coherence maximization. The systematic rejection or distortion of evidence that upsets one's favored explanation of the facts under dispute would be epistemically irresponsible and thus would undercut any claim to justification. Hence two main elements of the proposed theory, to wit, the conception of legal coherence as constraint satisfaction and the responsibilist conception of legal justification, together with the requirement that epistemic beliefs be included into the coherence calculation, significantly minimize the import of the objection from conservatism.

D. Circularity

A coherence theory of evidence and proof—so the objection goes—involves a vicious circularity in that it licenses an inference from a belief in a particular piece of evidence to a belief in a hypothesis while holding that belief in this hypothesis is justified by virtue of its coherence with the very same piece of evidence that prompted us to entertain this hypothesis in the first place. The charge that coherence theories of justification involve a vicious circularity is a standard one among critics of coherentism. Nonetheless, the problem of circularity is less troublesome than it appears at first. This problem arises only if one accepts a linear account of inference according to which justification involves a chain of beliefs along which justification is transferred from one element to another one down the chain. But there is no reason why a coherence theory should burden itself with such a view.

85. *See* Williams, *Coherence, Justification, supra* note 83, at 249.

As advocates of coherence theories of epistemic justification show, once we replace a linear view of inference with a holistic one, the circularity involved in coherentism may be shown to be benign.[86]

The coherence theory of justification of evidentiary judgments in law that I am proposing here rests on such a holistic view of inference in that—as the principle of acceptability says—the justificatory status of any element depends on its coherence with the rest of the elements in the set. In addition, this model assumes that relations of coherence are symmetrical and thus that two elements that cohere with one another are mutually interdependent, not that one is inferred from the other. The proposed coherence theory does not license an inference from a piece of evidence to the hypothesis that best explains it and then an inference from that hypothesis to the very same piece of evidence on the grounds that it is best explained by this hypothesis; rather, it shows how factual hypotheses and evidence in law mutually support each other in a way that is not viciously circular.

E. Coherence Is in the Mind's Eye

A traditional objection against coherence theories of justification is the so-called "isolation" or "input" objection.[87] This objection states that coherentism, by making justification a matter of internal relations among beliefs, cut off justification from the world. As a result, a coherent system that is the product of a visionary madman or literary fiction might be justified by the coherentist standards. In the context of fact reasoning in law, the worry is that a coherence theory may fail to ensure that evidence plays the role that it ought to play in the justification of evidentiary conclusions in law. But only if evidence does play a significant role in shaping the theories of the case can coherentism supply the criteria for distinguishing between a coherent theory that is properly anchored to the evidence at trial and a highly coherent story that is utterly out of contact with the events under dispute that it purports to describe, that is, a theory whose coherence is but the product of a "mind's eye."

The theory of optimal coherence provides two ways of overcoming the isolation objection. First, it relies on a conception of legal coherence as constraint satisfaction that gives priority to the evidence at trial. On this conception, evidence at trial is favored, although its final acceptance would

86. *See* LAURENCE BONJOUR, THE STRUCTURE OF SCIENTIFIC KNOWLEDGE (1985), at 89–92; Shogenji, *supra* note 30, at 94; JOHN L. POLLOCK, CONTEMPORARY THEORIES OF KNOWLEDGE (1986), at 73.

87. For a statement of the isolation objection, *see* JOHN L. POLLOCK, KNOWLEDGE AND JUSTIFICATION (1974), at 27–28. For some responses, *see* POLLOCK, CONTEMPORARY, *supra* note 86, at 76–77; Williams, *Coherence, Justification*, *supra* note 83, at 249–252; BONJOUR, STRUCTURE, *supra* note 3, at 139–143.

still depend on its coherence with the rest of the elements.[88] Second, it embodies a responsibilist conception of legal justification that makes responsiveness to evidence a condition of justification. Lack of responsiveness to evidence when reasoning about facts in law in a coherentist fashion is an epistemically objectionable behavior that according to this theory, fails to yield justified beliefs. Hence the theory of optimal coherence allows us to put worries about isolation to rest.

F. Coherence Ties

A traditional objection to coherence theories of justification is that there might be several equally coherent systems among which the coherence theory cannot adjudicate in a nonarbitrary way.[89] This objection seems to apply with all its force to coherence theories of evidence and proof. What should legal decision makers do in cases in which there are alternative but equally coherent explanations of the facts under dispute? The coherence theory, it might be argued, leaves legal decision makers with no grounds for a decision in situations of coherence ties.[90]

The objection from alternative but equally coherent theories of the case is, however, not a major one. As argued, the explanatory evaluation of hypotheses about the events at trial takes place within a highly structured institutional context that greatly facilitates the solution of coherence ties. In criminal cases, the principle of innocence demands that when there are two equally coherent theories of the case, the one that entails innocence should be accepted as justified. Institutional constraints therefore act as a tiebreaker between equally coherent theories in criminal cases.[91] As regards civil cases, even though the situation in which there are two equally coherent explanations of the events at trial might be a possibility, it is too unlikely to pose a serious problem for the theory. In any event, a coherence theory of justification does not seem to be worse off than competing accounts of justification to deal with situations in which the evidence available at a civil trial equally supports alternative decisions.

G. Coherent Stories and True Stories

A main problem for a coherence theory of justification of evidentiary judgments in law is to show that truth and coherence connect up in the right

88. Thagard takes the principle of data priority to provide a solution to the isolation objection as directed against coherence theories of epistemic justification. *See* THAGARD, COHERENCE, *supra* note 11, at 73.

89. *See* BONJOUR, STRUCTURE, *supra* note 3, at 107–108.

90. *See* Letizia Gianformaggio, *Legal Certainty, Coherence, and Consensus: Variations on a Theme by MacCormick*, *in* LAW, INTERPRETATION AND REALITY 402 (P. Nerhot ed., 1990), 430.

91. A similar point is made by Nance. *See* Dale A. Nance, *Naturalized Epistemology and the Critique of Evidence Theory*, 87 VA. L. REV. 1551 (2001), at 1586 n.107.

way. That is, a coherence theory of evidence and proof should give some reason to believe that accepting beliefs about the events under dispute as justified by virtue of their coherence leads us to accept beliefs that are likely to be true.

Now, what reasons do we have to believe that a coherence theory of justification advances the goal of factual accuracy in law? Coherence theorists have devised several strategies to show that coherence and truth (in its realist, traditional sense) are properly connected.[92] We may bridge the gap between coherence and truth by appealing to an inference to the best explanation,[93] by bringing an externalist element within a coherentist epistemology,[94] or by forging a conceptual link between coherence and truth via the concept of belief.[95] These strategies show that the case for the truth-conduciveness of coherence is not as hopeless as critics of coherentism take it to be. Although coherentist reasoning may lead us astray, as may any other form of defeasible reasoning, in that it may lead us to accept a theory of the case that is nonetheless false, there are several ways in which an argument to the effect that coherence systematically deceives us may be undercut.

Arguments against coherentism on the grounds that coherence fails to be truth-conducive are also wanting in another respect. The critic of coherentism assumes that a thorough defense of the viability of a coherence theory of justification depends on showing the theory to be truth-conducive. However, although truth-conduciveness is, to be sure, a crucial standard for assessing the adequacy of a theory of justification, other criteria are also relevant. Truth is a momentous epistemic goal but not the only one: there is a plurality of ends we are interested in achieving.[96] This is most certainly the case in the context of evidential reasoning in law. Fact-finding procedures in

92. One could meet the objection that a coherence theory of justification does not help us achieve the goal of establishing the truth at trial by endorsing a coherence theory of truth. Indeed, a version of the coherence theory of truth is defended by some proponents of coherentist approaches to evidence and legal proof, such as JACKSON, LAW, FACT, *supra* note 1, and VAN ROERMUND, *supra* note 2. However, an antirealist conception of truth seems to be incompatible with many procedural and evidential institutions; *see* Mirjan Damaška, *Truth in Adjudication*, 49 HASTINGS L.J. 289 (1997–1998). In addition, the coherence theory of truth faces serious objections; *see* RALPH C.S. WALKER, THE COHERENCE THEORY OF TRUTH: REALISM, ANTI-REALISM, IDEALISM (1989). These objections may also be directed against any attempt to analyze the truth of evidentiary statements in terms of coherence. Thus the challenge for coherence theories of evidence and legal proof is to show that coherentist standards of justification lead us to accept beliefs about the facts under dispute that are likely to be true in a way that does not involve a definition of truth as coherence.

93. *See* BONJOUR, STRUCTURE, *supra* note 3, at 171. *See* also THAGARD, COHERENCE, *supra* note 11, at 78–80; and Thagard, *Coherence, Truth*, *supra* note 29.

94. *See* LEHRER, THEORY OF KNOWLEDGE, *supra* note 3. *See also* Keith Lehrer, *Coherence and the Truth Connection: A Reply to My Critics*, *in* THE CURRENT STATE OF THE COHERENCE THEORY 253 (J. Bender ed., 1989); Keith Lehrer, *Justification, Coherence, and Knowledge*, 50 ERKENNTNIS 243 (1999).

95. *See* Davidson, *supra* note 3.

96. *See* Jonathan Kvanvig, *Truth Is Not the Primary Epistemic Goal*, *in* CONTEMPORARY DEBATES IN EPISTEMOLOGY 285 (Matthias Steup & Ernest Sosa eds., 2005). Similarly, truth does not seem to be the only goal that is relevant in moral rather than epistemic deliberation. *See* DEPAUL, *supra* note 3.

law are meant to serve a variety of goals other than truth, such as fairness, the protection of family relations, privacy, due process, or conflict resolution.[97] The soundness of a theory of legal justification is not exclusively a matter of whether it advances the goal of truth; rather, it depends on how well it helps triers of fact realize the diverse and often conflicting goals that the law aims at securing. Thus a key criterion for determining the adequacy of a theory of legal justification is whether it has the resources to guide fact finders in cases of value conflict. More important, the desideratum is that a theory of evidential reasoning should provide fact finders with a way to proceed rationally when truth and other values compete for realization.

In this respect, a coherence theory has good reasons to recommend it. Coherence is of a piece with a noninstrumentalist view of practical reasoning according to which we may rationally deliberate about ends and not merely about the best means to achieve some fixed ends. On a coherentist account of deliberation, judgments about what one should do are determined by the most coherent theory of the different values that apply.[98] It follows from this account that legal decision makers, when faced with conflict, ought to take the decision dictated by the theory that makes best sense of the relationship among the conflicting reasons. For example, when deciding whether to admit a piece of evidence at trial, a trial judge faced with a conflict between pursuing the truth and the protection of privacy is to take the decision favored by the most coherent theory that she has been able to construct while deliberating about how the conflicting values at stake are related to each other. An important part of the process of theory building involved in deliberation consists in "specifying" the relevant ends and norms in a way that enhances their coherence.[99] For instance, a trial judge may rationally cope with a conflict between truth and privacy by further specifying what truth and privacy requires in a way that increases the degree of coherence among these ends rather than by merely ranking one end over another. Thus coherentism is valuable in that it guides legal decision makers about how best to realize the set of competing ends, including truth, that are relevant in legal fact-finding.

In conclusion, the objections that may be raised against explicating the justification of evidentiary judgments in law in terms of coherence may be shown to be less harmful than they may appear at first. To start with, these objections are versions of the traditional objections raised against coherence theories, some of which are defused by contemporary coherence theorists. Increasingly sophisticated versions of coherentism are proposed that have the resources to meet some of the potentially damaging objections against

97. *See* WILLIAM TWINING, RETHINKING EVIDENCE (2d extended ed., 2006), at 75–80; MIRJAN R. DAMAŠKA, EVIDENCE LAW ADRIFT (1997), at 120–124; Robert S. Summers, *Formal Legal Truth and Substantive Truth*, 18 LAW & PHIL. 499–500 (1999); and Damaška, *Truth in Adjudication*, *supra* note 92, at 289.

98. *See* HURLEY, *supra* note 3.

99. *See* RICHARDSON, *supra* note 3.

coherentism. A coherence theory of evidence and juridical proof may avail itself of these resources in order to counteract some of the main criticisms directed against it. In addition, embedding the coherence theory, as I have argued, within a contextualist and responsibilist epistemology allows us to alleviate some of the most serious problems confronting the coherence theory and more specifically, the coherence theory of the justification of evidentiary judgments in law.

VIII. TOWARD A JURISPRUDENCE OF EVIDENCE

In the sections above I have articulated and defended a coherence theory of the justification of evidentiary judgments in law, that is, the theory of optimal coherence. This coherentist approach puts forward a picture of legal epistemology that has the following prominent features. First, the theory of optimal coherence is of a piece with a *naturalistic* approach to issues of evidence and proof in law, which takes facts about how fact finders reason to be relevant to answering questions about how they ought to reason.[100] From a naturalistic standpoint, coherentism is initially attractive, as our cognitive endowment seems to be geared toward coherence.[101] There is substantial evidence establishing that coherence plays a significant role in legal fact-finding.[102] Moreover, constraint satisfaction mechanisms have been shown to be at work in reasoning about evidence in conditions of complexity, such as those that characterize the context of legal fact-finding.[103] Hence the version of legal coherentism proposed advances the naturalistic project of devising theories of evidential reasoning that can be implemented by real rather than ideal legal agents.

Second, the theory of optimal coherence endorses a *contextualist* approach to legal epistemology according to which the justification of conclusions about disputed questions of fact is context-dependent. This trend toward contextualizing coherentism goes hand in hand with the development of a naturalized epistemology of legal proof. A contextualist understanding of the set of beliefs that confers justification significantly increases the psychological plausibility of the coherence theory of justification, as it does

100. For a naturalistic approach to evidence law, *see* Ronald J. Allen & Brian Leiter, *Naturalized Epistemology and the Law of Evidence*, 87 VA. L. REV. 1491 (2001). For a critique, *see* Nance, *supra* note 91. *See also* Mike Redmayne, *Rationality, Naturalism, and Evidence Law*, 2003 MICH. ST. L. REV. 849 (2003); with a reply by Ronald J. Allen and Brian Leiter in the same issue.

101. *See* Paul Ziff, *Coherence*, 7 LINGUISTICS & PHIL. 31 (1984).

102. *See* Hastie & Pennington, *supra* note 2; WAGENAAR, VAN KOPPEN, & CROMBAG, *supra* note 2; and Simon, *Third View*, *supra* note 4.

103. *See* Keith J. Holyoak & Dan Simon, *Bidirectional Reasoning in Decision-Making by Constraint Satisfaction*, 128 *J.* EXPERIMENTAL PSYCHOL.: GEN. 3 (1999); Keith J. Holyoak et al., *The Emergence of Coherence over the Course of Decision-Making*, 27 *J.* EXPERIMENTAL PSYCHOL.: LEARNING, MEMORY & COGNITION 1230 (2001); Dan Simon & Keith J. Holyoak, *Structural Dynamics of Cognition: From Consistency Theories to Constraint Satisfaction*, 6 *J.* PERSONALITY & SOC. PSYCHOL. REV. 283 (2002); Dan Simon, Chadwick J. Snow & Stephen J. Read, *The Redux of Cognitive Consistency Theories: Evidence Judgments by Constraint Satisfaction*, 86 J. PERSONALITY & SOC. PSYCHOL. 814 (2004).

not require legal fact finders to build coherence among the whole system of beliefs, which is beyond what they may achieve given our cognitive and memory resources, but, more modestly, it expects fact finders to achieve coherence only within the subset of beliefs that is shown to be relevant in the particular context.

Third, the theory of optimal coherence puts forward a *responsibilist* conception of the justification of evidentiary judgments in law, which claims that the standards of behavior that regulate inquiry and deliberation about factual matters in law have a bearing on the justificatory status of the resulting decisions. More specifically, a main tenet of the model of coherence proposed here is that compliance with some epistemic duties and the exercise of some epistemic virtues are necessary for ascribing justified beliefs in the legal context. It follows from this view that legal epistemology is best understood within the broader framework of "virtue epistemology," which makes virtues central to the analysis of justification and knowledge.[104] From this perspective, the study of the features that mark off virtuous behavior in legal fact-finding is not merely the appropriate subject of legal ethics but rather a substantial part of a jurisprudence of evidence.

Fourth, the coherentist model developed in this paper underwrites an *explanationist* approach to evidential reasoning in law, according to which legal reasoning about evidence is first and foremost an explanatory kind of reasoning. An important consequence of turning to explanationism is that of expanding the scope of the theory of legal reasoning beyond its traditional boundaries. Questions pertaining to the context of discovery are largely neglected by theories of legal reasoning, whose focus is on questions of justification. In the context of evidence law, this reductive view has been reinforced, for the dominant probabilistic paradigm—that is, Bayesianism—is not applicable to discovery-related issues.[105] In contrast, explanatory inference is a kind of inference whereby hypotheses are both generated and

104. Two main approaches to virtue epistemology may be distinguished: virtue responsibilism and virtue reliabilism; *see* Guy Axtell, *Recent Work on Virtue Epistemology*, 34 Am. Phil. Q. 1 (1997). Virtue responsibilists understand virtues as personality traits or qualities of character that are analogous to the moral virtues. *See* Code, *supra* note 56, Montmarquet, Epistemic Virtue, *supra* note 56, and Zagzebski, *supra* note 52. In contrast, proponents of "virtue reliabilism" understand virtues as reliable cognitive abilities or powers. *See* Sosa, *supra* note 46; Ernest Sosa, Apt Belief and Reflective Knowledge (2007); John Greco, Putting the Skeptics in Their Place (2000); John Greco, Achieving Knowledge: A Virtue-Theoretic Account of Epistemic Normativity (2010). It is the responsibilist version of virtue epistemology that seems to me to be more promising as a framework for analyzing issues of knowledge and justification in law. For a discussion of the main versions of virtue epistemology, *see* John Greco, *Virtues in Epistemology*, *in* The Oxford Handbook of Epistemology 287 (P. Moser ed., 2002). For some work that aims at developing a virtue approach to the epistemology of legal proof, *see* Amaya, *supra* note 58, and Ho Hock Lai, *Virtuous Deliberation*, *in* Virtue, Law, and Justice (A. Amaya & H. L. Ho, eds., 2012).

105. There is nonetheless an important body of work on discovery by evidence scholars. *See*, among others, David A. Schum, *Marshalling Thoughts and Evidence during Fact-Investigation*, 40 S. Tex. L. Rev. 401 (1999); and Peter Tillers & David A. Schum, *A Theory of Preliminary Fact-Investigation*, 24 U. C. Davis L. Rev. 931 (1990–1991).

evaluated. Thus an explanatory approach to factual inference in law places both questions of discovery and questions of justification within the scope of a theory of evidential reasoning in law. As a result, it expands the role of reason in law by making discovery, as much as evaluation, a process that falls within the realm of reason.

Last, the coherence model articulated above advances a *noninstrumentalist* approach to reasoning about evidence in law, according to which deliberation about factual matters involves deliberation about ends. This is a second way in which the coherentist approach to justification moves toward expanding the scope of reason in factual decision making in law. Fact-finding is part of a broader process of decision making that is meant to achieve the satisfaction of different and often conflicting ends. But if this is so, then a theory of evidential reasoning in law should not merely tell us—as is implicitly assumed—what are the best means to achieve some fixed ends. Rather, it should also provide legal decision makers with guidance as to how to proceed in the face of value conflict and, most important, how to strike a balance between truth and other values. The coherentist approach defended here satisfies this demand by placing questions about the ends of adjudication within the reach of deliberation.

To conclude, in this paper I have argued for a coherentist approach to the justification of evidentiary judgments in law according to which justification is a matter of optimal coherence. I have shown that this theory overcomes some of the main problems facing coherence theories of evidence and proof. In addition, it has some interesting implications for the theory of evidential reasoning in law. Nonetheless, there are still many aspects of the proposed version of legal coherentism that need to be further developed.

First, a constraint-satisfaction characterization of factual coherence faces the "problem of the input," that is, the problem of determining the elements and the coherence (and incoherence) relations upon which assessments of coherence depend. In addition, it also seems necessary to clarify further how the different kinds of coherence that are relevant to the justification of conclusions about disputed questions of fact relate to each other, that is, the "problem of integration."

Second, the theory of optimal coherence rests on a naturalized view of legal epistemology. The objection that naturalized approaches to epistemology fail to account for the normativity of justification applies equally to any attempt to naturalize the epistemology of legal proof. Thus it is necessary to spell out in detail the kind of naturalism involved in this approach to coherentism so as to put to rest worries about whether it preserves the normative dimension of legal justification.

Third, some versions of contextualism lead to forms of relativism or skepticism that are not acceptable in the context of legal fact-finding. The question arises as to whether contextualizing coherentism in the way proposed here leads to an undesirable relativization of the conditions under which evidentiary judgments in law are justified.

Fourth, the coherentist theory of evidence and proof developed in this paper makes virtues and duties central to issues of justification. This responsibilist approach to legal epistemology is in its infancy. A more thorough account of how epistemically responsible behavior relates to the justification of factual conclusions in law is surely needed. More work also needs to be done with regard to the kind of epistemic virtues and duties that are relevant to legal fact-finding as well as how they relate to moral virtues and duties.

Last, much more needs to be said about how explanatory inference works in the legal setting. Despite all the work that still remains to be done, I hope that this paper contributes to advancing the study of the justification of evidentiary conclusions in law and to establishing coherentism as a plausible candidate worth exploring further.