ABDUCTIVE REASONING IN LAW: TAXONOMY AND INFERENCE TO THE BEST EXPLANATION

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Following the positivistic philosophy of Karl Popper and Hans Reichenbach,[1] many traditionalist thinkers on rational proof in law still assume a sharp distinction between "the context of discovery" and "the context of justification." These traditionalists regard the context of justification as the proper province of legal reasoning. Justification deals with the analysis and appraisal of decisions, judgments, arguments, and verdicts once they are already "on the table." Thus, questions about the rational adequacy of a judge's verdict, or about a police decision to charge a suspect, or about the viability of a case that the District Attorney chooses to prosecute are all important to traditional theories. However, questions about discovery[2] play little or no role in many accounts of evidential reasoning in law. The traditionalist does not claim that discovery and imagination are unimportant. Rather, her claim is that a theory of legal reasoning should concern itself only with the *logic* of rational arguments. Imagination and discovery should be left to the psychologist. The legal theorist Neil MacCormick states this traditional stance very succinctly: "[I]n relation to legal reasoning, the process which is worth studying is the process of argumentation as a process of justification."[3]

In his *Species of Abductive Reasoning in Fact Investigation in Law*,[4] David Schum challenges this traditional disdain for

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1 *See, e.g*, SIR KARL POPPER, THE LOGIC OF SCIENTIFIC DISCOVERY (1968); HANS REICHENBACH, THE RISE OF SCIENTIFIC PHILOSOPHY (1951).

2 That is, the imaginative process by which facts, evidence, arguments, or judgments are generated to start with.

3 NEIL MACCORMICK, LEGAL REASONING AND LEGAL THEORY 19 (1978) (citations omitted).

4 David A. Schum, *Species of Abductive Reasoning in Fact Investigation in Law*, 22 CARDOZO L. REV. 1645 (2001) [hereinafter Schum, *Species*]; *see also* DAVID A. SCHUM, THE EVIDENTIAL FOUNDATIONS OF PROBABILISTIC REASONING (1994) [hereinafter SCHUM, EVIDENTIAL FOUNDATIONS]; David A. Schum, *Probability and the Processes of Discovery, Proof, and Choice*, 66 B.U. L. REV. 825 (1986) [hereinafter Schum, *Probability*

discovery and imagination. Anyone who pays serious attention to real-life legal processes will acknowledge that facts, arguments, and evidence—all the ingredients of rational inference in legal settings—have to be imagined and generated. Hence, legal theorists who expunge discovery from their theories can, at best, render nothing more than a parallaxed view of legal reasoning. But Schum does not merely challenge the traditional stance. He also classifies the various forms of abductive inferences that are important to legal fact finding.

The study of abduction as a species of inference has a fairly long history in philosophical circles. Consequently, there are various definitions and classifications of abduction. Some regard it as a variety of inductive reasoning, some regard it as a variety of deductive reasoning, and others claim that it is a potpourri of both deduction and induction. Some claim that it has to do with inference to the best explanation. Schum conceives of it as an argument form in which "we show that something is *possibly* or *plausibly* true."[5] In Schum's view of abduction, the novelty, plausibility, and intelligence-conferring capabilities of that which is being generated are all of crucial importance. Indeed, this is precisely why he claims that all the major ingredients of inference—evidence items, arguments, and hypotheses—"must be generated or discovered by the imaginative thinking of investigators and advocates. From our observations we generate hypotheses we believe will explain these observations. These observations only become relevant evidence when their bearing on generated hypotheses is established by defensible and persuasive arguments."[6] In short, if we expect our abductive inferences to persuade others rationally, they must not merely be *novel*, they must also *explain*.

Schum is quite clear about the sort of explanations he does not want his abductions to be. He does not like abduction to be regarded as some sort of "inference to the *best* explanation." Thus he claims:

> [On] one very popular definition . . . abductive reasoning is said to be "inference to the best explanation." This view has been criticized . . . on the grounds that it mixes together the processes of generating and evaluating hypotheses. If we say we have the "best" explanation, we must have some criterion for judging

and Discovery].

[5] Schum, *Species*, *supra* note 4, at 1645.

[6] *Id.*

> which is best, and we must also be assured we have canvassed all possibilities, something that is very difficult to claim.[7]

Schum's taxonomy builds upon the works of Umberto Eco[8] and Paul Thagard.[9] Each of these scholars has advanced different models of abductive reasoning. The import of Schum's article lies in his syncretism of these different works to form a unitary model for the classification of abductive inferences. Eco concentrates on the *degree* of creativity involved in the mentalistic process of abducing, while Thagard concentrates on that which is being abduced. In other words, Eco deals with the creative process of the abducer while Thagard concentrates on the creations of the abducer. In his study of creative processes, Eco distinguishes between overcoded, undercoded, creative, and meta abductions. In his study of creations, Thagard focuses on what he calls simple, existential, analogical, and rule-forming abductions.

Schum's article contains very enlightening explanations of these eight varieties of abductive reasoning,[10] and I will not summarize them again here. My point of observation relates to the movement from a theory of taxonomy to the practice of abducing in real life contexts. Is Schum's taxonomy rich enough to enrich our understanding of real-life abductions in law? Schum's taxonomy emphasizes the point that reasoning in law is a complex and dynamic process in which we must pay attention to what is being created and the process of creation itself.[11] Even if this joint method does not capture *all* possible abductive processes in law, it is very rich and one of the best available taxonomies of imaginative reasoning we have. But the question is: Is the richest rich enough?

Suppose we ask another question: Why do investigators and advocates generate abductive inferences? One answer is that *explanation* is intimately bound up with abductive inference. Investigators and advocates seek to generate facts, evidence, and hypotheses because they wish to explain or clarify some X. I am not suggesting that explanation is the *only* motive for imaginative reasoning in law. Rather, what I would like to do is explore the full import of explanation on the Schum taxonomy of abduction. That is, if we take the explanatory function of abduction seriously, what effects would this have on Schum's taxonomy of abduction?

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7 *Id.* at 1655 (citations omitted).

8 *See, e.g.*, UMBERTO ECO, A THEORY OF SEMIOTICS (1976); UMBERTO ECO, SEMIOTICS AND THE PHILOSOPHY OF LANGUAGE (1984).

9 *See generally* PAUL THAGARD, COMPUTATIONAL PHILOSOPHY OF SCIENCE (1988).

10 *See generally* Schum, *Species*, *supra* note 4. This author agrees with Schum's characterization of the variety of abductions.

11 *See generally id.*

To clarify, I am not claiming that Schum says explanation is unimportant to abduction. Indeed, at various points in his article he stresses the explanatory function of abduction.[12] However, I have a difficulty with his rejection of abduction as inference to the best explanation. How can one claim to take explanations seriously, as Schum clearly does, and yet throw away that which is most central to abductive explanations in legal contexts?

In legal settings, the advocate or investigator is primarily interested in generating facts, arguments, and evidence that provide explanations for the problem at hand. Thus, the bulging knife from the chest of John Doe's corpse is evidence that explains the corpse—namely, that someone stabbed John Doe. In their attempts to generate facts, evidence, and arguments that would lead to the arrest of a suspect for this crime, the police are not interested merely in the nature of their imaginations and the mentalistic process of imaginations. They are interested in inferring those explanations that, if true, would explain John Doe's death. But suppose that the detectives were able to generate two or more viable explanations (such as two or more viable suspects). What criteria or criterion should they use in deciding which suspect(s) to charge? In real life, their choices must in some way be dictated by considerations of which suspect, or explanation, supplies the "best," or most adequate, explanation.

The question then becomes how to spell out what is meant by the "best." Schum quite explicitly voices his concerns on this point: "[O]ne problem with saying that abductive reasoning is inference to the best explanation is that we may not have any settled criterion for saying what is the 'best' explanation."[13] In legal settings, this might not be too intractable a problem if we pay attention to the significance of standpoints or perspectives. Schum himself has explained the overall importance of standpoints to legal analysis.[14] What I claim is that investigators and advocates make use of their current standpoints in their explanations of the "best" in legal abductive inferences.

Standpoints emphasize the point that the analysis and evaluation of evidence is always dependent upon the functions, roles, time, and contexts within which the evidence analyst is placed. Hence, the standpoint of the police officer may be

12 *See generally id.*

13 Schum, *Species*, *supra* note 4, at 1659.

14 *See* SCHUM, EVIDENTIAL FOUNDATIONS, *supra* note 4, at 71-75, 139-40; *see also* TERENCE ANDERSON & WILLIAM TWINING, ANALYSIS OF EVIDENCE: HOW TO DO THINGS WITH FACTS (1991) (explaining the overall importance of standpoints to legal analysis).

different from that of the advocate, the judge, or the jury. Indeed, the standpoint of the same individual may differ at different stages during the legal process. For instance, the standpoint of a police officer during the preliminary stages of investigation is different from that of the same police officer once he becomes a witness for the prosecution during the trial. Standpoints therefore supply *one* natural criterion for deciding what is best in legal contexts. "Best" is defined on the basis of the roles, functions, and contexts at hand. For example, assume the police are trying to solve the murder of John Doe:

> When John Doe was found, early one Sunday morning, lying across his desk with a dagger through his back, no one expected that the question who did it would be settled by means of testimony. It was not likely that anyone saw the murder being done. It was even less likely that someone in the murderer's confidence would give him away. It was least likely of all that the murderer would walk into the village police-station and denounce himself. In spite of this, the public demanded that he should be brought to justice, and the police had hopes of doing it; though the only clue was a little fresh green paint on the handle of the dagger, like the fresh green paint on the iron gate between John Doe's garden and the rector's.[15]

Based on various types of abductive, deductive, and inductive reasoning, the police considered several suspects. First, there was the "elderly neighbouring spinster asserting that she killed John Doe with her own hand because he had made a dastardly attempt upon her virtue."[16] The police regarded this story as incredible, and they "advised her to go home and have some aspirin."[17]

> [There was also] the rector's daughter [who], in a state of agitation, rushed in and said she had done it herself; the only effect of which was to make the village constable ring up the local Inspector and remind him that the girl's young man, Richard Roe, was a medical student, and presumably knew where to find a man's heart; and that he had spent Saturday night at the rectory, within a stone's throw of the dead man's house.[18]

Following up on the abduction that Richard Roe was a likely suspect, the police built a case in which the rector turned out to be the best of all the competing explanations. In building their case, the police remembered:

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[15] R.G. COLLINGWOOD, THE IDEA OF HISTORY 41-42 (1993) (providing this hypothetical).

[16] *Id.* at 42.

[17] *Id.*

[18] *Id.*

> [T]here had been a thunderstorm that night, with heavy rain, between twelve and one; and the inspector, when he questioned the rectory parlour-maid . . . was told that Mr. Roe's shoes had been very wet in the morning. Questioned, Richard admitted having gone out in the middle of the night, but refused to say where or why.[19]

Further investigation, however, revealed:

> John Doe was a blackmailer. For years he had been blackmailing the rector, threatening to publish the facts about a certain youthful escapade of his dead wife. Of this escapade the rector's supposed daughter, born six months after marriage, was the fruit; and John Doe had letters in his possession that proved it. By now he had absorbed the whole of the rector's private fortune, and on the morning of the fatal Saturday he demanded an installment of his wife's, which she had left to him in trust for her child. The rector made up his mind to end it. He knew that John Doe sat at his desk late into the night; he knew that behind him, as he sat, there was a French window on the left and a trophy of Eastern weapons on the right; and that on hot nights the window was left open until he went to bed. At midnight, wearing gloves, he slipped out; but Richard, who had noticed his state of mind and was troubled about it, happened to be leaning out of his window and saw the rector cross the garden. He hurried into his clothes and followed; but by the time he reached the garden the rector was gone. At this moment the thunderstorm broke. Meanwhile the rector's plan succeeded perfectly. John Doe was asleep, his head fallen forward on a pile of old letters. Only after the dagger had reached his heart did the rector look at them, and see his wife's handwriting. The envelopes were addressed "John Doe, Esq." Until that moment, he had never known who his wife's seducer had been.[20]

The facts and arguments were generated and teased out of the narratives given by the Rector, his daughter, and Richard Roe, as well as other background knowledge. Although the police initially inferred that Richard Roe was the best explanation for the murder, further examination proved them wrong. Indeed, once they had accepted the Rector as the best explanation, Detective-Inspector Jenkins of Scotland Yard was able to discover numerous items of evidence, such as ashes of written paper in the rectory's dustbin, ashes of leather—probably a pair of gloves—and "metal buttons bearing the name of a famous glove-maker in Oxford Street whom the rector always patronized."[21]

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19 *Id.*

20 *Id.* at 42-43.

21 *Id.* at 43.

This example illustrates the point that identifying the criterion for the best explanation is not an intractable problem in law—we have standpoints to fall back on. If the standpoint adopted in the examination of Richard Roe's guilt had been limited to that of, say, a juror, then in the absence of any other viable explanation, that explanation might have been deemed to be the best.

But Schum has another problem with abduction as inference to the best explanation: "[W]e [do not] often have assurance that we have canvassed all possible explanations."[22] The reply to this concern is that inference to the best explanation does not require us to wait until *all possible* explanations are in. We simply infer the best of all the available explanations. Of course, this does not mean that we must always infer an explanation—even when there is no good explanation about to be found! The police do not infer that *X* is the criminal simply because this provides a possible explanation for the crime.[23]

David Schum claims that "Eco's and Thagard's classifications of abductive reasoning, considered jointly, allow us to capture very interesting elements of the process of marshalling or colligating the products of abductive reasoning."[24] This I do not dispute. My point, however, is that if we truly want to pay attention to real-life legal processes, our classifications ought to grapple with one important question: When does an abductive explanation actually explain? Understanding abduction as *inference to the best viable (actual) explanation* is our best bet for this task.

22 Schum, *Species*, *supra* note 4, at 1659.

23 At least the police *ought* not to infer that *X* is a criminal simply because it provides one possible explanation. However, in some gross miscarriages of justice it often appears as if this is precisely what the police have done!

24 Schum, *Species*, *supra* note 4, at 1678.