**THE EXPLANATIONIST REVOLUTION IN EVIDENCE LAW**

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**1. Introduction**

Allen and Pardo have been building over the years a relative plausibility theory of evidence and proof that is meant to provide an alternative to the controversial probabilistic approach. In the target essay, they contend that the embracement of this theory is a veritable revolutionary move in the field of evidence law. In their view, evidence scholarship is experiencing a revolution from probabilism to explanationism, by which they understand the relative plausibility theory. The essay deftly shows how their view may be defended against the criticism that have been raised by those who oppose the abandonment of probabilism as the correct approach to think about evidentiary issues in law. In counteracting these critiques, Allen and Pardo develop the relative plausibility theory in further detail, show how it may explain key features of the process of legal proof, and explore its normative implications. Thus, this article is a critical piece for understanding the reach and credentials of the proposed model of evidence and proof. In this comment, I shall not dispute the details of the model or its descriptive and normative adequacy. Rather, I shall dispute Allen and Pardo’s contention that the relative plausibility theory is the alternative paradigm that emerges in evidence law’s revolution from probabilism to explanationism.

My argument will proceed in three steps. First, I shall elaborate on the concept of legal revolution and show that it involves a kind of change –*pace* Allen and Pardo- distinct from Kuhn’s paradigmatic scientific revolutions. Next, I shall clarify what is involved in siding with probabilism or explanationism in the field of evidence law. I shall argue that what is at stake in the probabilism vs. explanationism debate is not properly characterized as a choice between different ways of describing the fact-finding task, as Allen and Pardo claim, but that the change in view is a much deeper one, as it would be expected of a genuine revolution. Last, once we have a better understanding of revolutions in law and, specially, of the paradigm shift from probabilism to explanationism in evidence law, we are well positioned to see that identifying the relative plausibility theory with explanationism –as Allen and Pardo do- oversimplifies the complexity of the revolutionary move in evidence scholarship. The novel paradigm embraces, but cannot be reduced to, the relative plausibility theory; the identification of explanationism with the relative plausibility theory occludes the richness and possibilities harbored by the new, explanationist, paradigm.

**2. On Law and Revolution**

Allen and Pardo in a very suggestive manner began their paper by contending that ‘[w]ithin the field of evidence law, a phenomenon very similar to a paradigm shift, in the Kuhnian sense, is occurring.’ Although smaller in scale, the shift from probabilism to explanationism in evidence law is a transformation, argue Allen and Pardo, similar to the revolutionary processes in the history of science described by Kuhn. Whereas Kuhn’s work is well-known and used in legal scholarship, it is mostly the notion of ‘paradigm,’ rather than that of paradigm change, that has been deployed to historically examine legal theory and legal dogmatics (Aarnio: 1984; De Vries: 2013, 8). Thus, the emphasis in legal scholarship has been placed on ‘normal science’ and continuity, rather than on ‘revolutionary science,’ change, discontinuity, and transformation. It is therefore refreshing to read Allen and Pardo’s invitation to view current transformations in the field of evidence scholarship through the language of scientific revolutions.

Indeed, a fundamental change is involved in the shift from probabilism to explanationism. The change, as I will argue later, in conceptual structure, values, and tools is so deep as to be appropriately described, as Allen and Pardo claim, as analogous to a scientific revolution. However, there is also an important continuity in work in evidence law, which disappears from sight when a Kuhnian narrative is deployed. Allen and Pardo admit that there is a difference in scale between the explanationist revolution in law and the transformation from Newtonian mechanics to Einsteinian physics -as described by Kuhn. The difference, however, I would argue, is not only a difference in scale but both transformations are also different in nature. Whether or not Kuhn’s theory of scientific revolutions is appropriate to explain the history of physics, it does not seem to capture the kind of transformation that, arguably, marks off the history of evidence law (and, more generally, legal theory and dogmatics). The paradigm shift from probabilism to explanationism is best understood, in my view, as a Hacking type of revolution, rather than as a Kuhnian one. It is, thus, best interpreted as an instance of an ‘emplacement’ revolution, instead of a ‘replacement’ revolution of the kind that Kuhn envisioned.

Hacking-type revolutions are named after Ian Hacking, who characterized the emergence of probabilism in the nineteenth century as a scientific revolution that involved, critically, a change in ‘style of reasoning’ (Hacking: 1987). Styles of reasoning are a distinctive way of investigating the world, they are diverse ‘methods of argument,’ ‘modes of inquiry,’ or ‘ways of finding out’ (Hacking: 2012). Each style is distinguished by its ‘mode of reasoning,’ or ‘inferential framework,’ which puts in place a different understanding of what counts as scientific knowledge, a novel language, new types of objects, and new methods of verification to establish the truth-conditions of such objects (Winther: 2012). Unlike Kuhn’s paradigms, syles of reasoning are not individuated by particular theories (such as the Newtonian paradigm or the Darwinian paradigm) neither are they domain-specific (Bueno: 2012, 659; Humpreys: 2011). Instead, different research programs are possible within the context of a given style, which encompasses several scientific disciplines. Examples of styles of reasoning are: axiomatic, experimental, hypothetical-analogical, taxonomic, probabilistic, and genealogical (Winther: 2012). Hacking revolutions are considered to be ‘emplacement’ revolutions (Schweber: 2016, 342). ‘Replacement’ revolutions are the Kuhnian type of revolutions in which an established scientific theory is overthrown an a different one takes over. In contrast, in ‘emplacement’ revolutions the introduction of new methods does not result in the abandonment or untanability of previous approaches.

The explanationist turn in evidence law may be profitably described as a Hacking-type of revolution in which a new inferential method, i.e., explanatory inference, has brought in a new approach to the kind of knowledge that we may achieve in the context of legal fact-finding (explanatory knowledge), a novel language (abductive logic rather than probability calculus), and a distinctive approach to the establishment of the truth-value of novel candidates for truth (i.e. explanations instead of probability statements). Explanationsim encompasses a variety of different theories (more on this later) and it is hardly specific to the domain of evidence law, but rather it is defended and applied in a wide range of disciplines. Finally, as I will argue later, the acceptance of explanationism does not amount to the abandonement of all the previous concepts or the demise of previous styles of reasoning.

In short, it is healthy, when examining legal theory and dogmatics from a historical perspective to tip off the balance and focus not only on the many ways in which the stability of legal research is secured -as work on legal paradigms do- but also on how change is brought about and rupture takes over. In this sense, talk about revolutions in law (as Allen and Pardo’s) brings to light the important shifts that are also involved in legal research. However, a focus on (Kuhnian) revolutions also risks providing an incomplete and distorted view of the evolution of legal research and culture. While there is innovation and radical change in law, there is also cumulation and continuity. In this sense, as in other fields of inquiry that did not figure prominently in Kuhn’s theory of scientific revolutions, such as chemistry, the shift from probabilism to explanationism in evidence law is best understood as an ‘emplacement’ revolution, rather than as a ‘replacement’ one (Chamizo: 2018). It is not Kuhn but (to the delight of the probabilist) Hacking, the central figure we should turn to in order to explain the breath and nature of the change that current evidence law is experiencing.

**3. The Point of the Revolution**

Revolution in evidence law, I have argued, involves a kind of change that, while fundamental, does not make it the case that across the revolutionary divide practicioners endorse paradigms, as Kuhn famously described it, that are inconmensurable. Paradigm shifts (or better, shifts in sytles of reasoning) preserve previous theoretical beliefs, disciplinary tasks, and values. This said, scientific revolutions (like political ones) bring about a major change in view about core elements of the tradition -this is, after all, which allows us to distinguish between disagreement within a paradigm, a sytle, or a research tradition and a genuine revolutionary change. What is, then, the point of the revolution in evidence law? What is that distinguishes conventional, probabilistic, work in evidence law from explanationism about evidence and legal proof?

According to Allen and Pardo, there are two fundamental ways in which the explanatory account of evidence and legal proof differs from the conventional probabilistic account: first, they posit different criteria (explanatory vs probabilistic) as central to the fact-finding process, and second, whereas explanationism characterizes the proof process as comparative, probabilism does not. Even though these are important differences, the disagreement between explanationism and probabilism runs much deeper than Allen and Pardo’s characterization of the distinction between both paradigms suggests. Explanationism and probabilism endorse, more fundamentally, a different conception of rationality in legal fact-finding. It is, I would argue, at this very basic level that the difference between probabilism and explanationism may be located (Amaya: 2015). Other distinctions -such as those mentioned by Allen and Pardo, emanate from this basic disagreement. The point of the revolution is thus nothing less than to change the conception of rationality that should underwrite a theory of evidence and legal proof. This should be, at this point, hardly surprising, if, as argued, the revolution in evidence law is a Hacking-type of revolution, that is, a kind of revolution that primarily affects the reasoning style accepted in the discipline.

The probabilistic paradigm endorses (in keeping with much work done in philosophy and psychology) what Stein refers to as ‘the standard theory of rationality,’ according to which, “to be rational is to reason in accordance with principles of reasoning that are based on rules of logic, probability theory, and the like” (Stein: 1996, 5). That is, the standard picture of rationality ‘converts’ rules of logic, probability, and so on into normative principles of reasoning. The conception of rationality as probabilistic coherence, according to which, a subject’s system of beliefs is rational if and only if it conforms to the laws of probability, is but one instantiation of the standard view of rationality. The standard picture of rationality has some initial appeal. Most importantly, it seems to provide precise and scientifically respectable standards against which to evaluate human reasoning. However, despite its attractiveness and wide acceptance across disciplines, it faces serious problems.

First, the standard conception of rationality is impossibly idealized. It fails to take into account the limitations of memory and cognitive resources that human beings are subjected to. It embodies resource-independent standards the normative relevance of which for human beings like us has been rightly put into question. Secondly, this conception is highly restrictive, in that a lot of important issues that need to be settled in order to reach rational beliefs (such as isues concerning how one gets the input to the reasoning process, i.e., the relevant probabilities, preferences, and acceptances, how agents bring to bear relevant knowledge to the decision-process, and how they should determine which hypotheses are worth pursuing) fall beyond its scope of application. Third, the standard view embeds exclusively a formal sort of rationality, which secures that what we believe and do is in line with one’s beliefs and preferences, but remains silent about which sorts of beliefs or preferences one should hold in the first place and whether or not they track the truth. It provides, in Ramsey’s words, a ‘formal logic,’ which establishes internal consistency constraints, but not a ‘human logic,’ which aims at providing guidance on what to think in order to accomplish our cognitive goals, most importantly, the goal of truth (Ramsey: 1990, 86-87).

The problems besetting the conception of rationalty that underwrites the probabilistic paradigm are at the root of many of the objections (some of which are noted or discussed in Allen and Pardo’s target article) that have been raised against the probabilistic theory of evidence and legal proof, i.e., that it is not psychologically plausible or that it is radically subjective. In contrast, the explanationist paradigm is grounded on a fundamentally different conception of rationality that does not fall prey to the objections directed against attempts to read off (as conventional probability analysis in evidence law does) rules for rational belief from rules of logic or probability theory. First, explanationism satisfies the naturalistic constraint in that there is substantial pyschological evidence that shows the pervasiveness of explanatory reasoning. Secondly, explanatory standards have a broader scope of application: they provide guidance throughout the process of belief formation, as they play a role in both the generation and refinement of plausible alternatives as well as the selection of the best explanatory hypothesis. Last, explanatory reasoning is content-dependent, for explanatory judgments critically depend on substantive background assumptions, thereby significantly limiting the role that subjective factors may play in epistemic evaluation.

Hence, the difference between probabilisim and explanationism primarily concerns, I believe, the assumed conception of reasoning and rationality. Indeed, it is because the shift from probabilism to explanationism brings with it a change in view at this very fundamental level, that such a shift may be meaninfully characterized as a revolution. Embracing an alternative conception of rationality is not merely one among many theoretical choices, but rather it is highly consequential. First, it -as Allen and Pardo corrently point out- a different characterization of the nature of the proof process and the relevant criteria in legal fact-finding. Secondly, it puts forward, as argued, a very different view on the kind of tools that are useful for analysing evidentiary processes in law, the fruifness of different interdisciplinary endevours, the appropriate language for expressing evidentiary conclusions, and the adequate methods for validating them. Third, it also has far reaching implications for the legitimacy of our current evidentiary arrangements. Given the implausible idealizations involved in standard views of rationality (and, more specifically, in the view of rationality as probabilistic coherence), it follows that much of what passes by sound argument in the context of legal fact-finding would be (by these standards) irrational – a skeptical conclusion that would be adverted by explanationsim, which enjoys a high degree of psychological plausibility. Finally, it also has consequences for institutional design, as the shift from probabilisim to explanationsim would promote the examination and potential reform of evidentiary institutions with an eye to enhancing the quality of explanation-based legal decision-making. Thus, a change in the accepted conception of rationality has multiple ramifications through the whole system of evidence law: it has the scope and deepeness that is characteristic of scientific revolutions.

Now, against this background, what can be said about current attempts to reconcile explanationism with probabilism? There are different ways in which one may give content to the idea of explanatory excellence (more on this later). Indeed, one could (as many have done) identify explanatory power with probabilistic coherence thereby showing the compatibility between probabilism and explanationism. This move, however, as I have argued elsewhere, yields a model that is highly recognizable as a version of explanationism (Amaya: 2015). In the language of the revolution, one might argue that such attempts are best viewed as attempts to change so that nothing changes, or as attempts to preserve old views in new vessels. This is not to say that what we have learnt about law and probability is of no use in the explanationist ‘era.’ Despite the fundamental changes they bring about, revolutions do not provide -neither in science and much less in law, as argued- a clean blancket to start anew. Human culture -which obvioulsy includes scientific and legal culture- is cumulative (Tennie, Call, and Tomasello: 2009). Novel paradigms are buildt upon the history of successes and failures of previous models. Instead of resisting change or assimilating explanationism into the probabilistic paradigm, it seems appropriate to recognize the many ways in which probabilistic analysis has contributed to a better understanding of legal proof and investigate the tasks for which the diverse inferential frameworks available might be put to good use within the field of evidence law.

**4. The Diversity of Explanationism**

Allen and Pardo identify the relative plausibility theory with the explanationist alternative. However, explanationism comes in different guises. There are different models of inference to the best explanation and a variety of explanationist views, which undermines Allen and Pardo’s identification claim. At the very least, there are as many versions explanationism as there are different views about the notion of explanatorieness that is at work in infering to the best explanation (Schupback: 2017, 8). In Allen and Pardo’s explantionist theory of evidence and legal proof, explanatorieness is evaluated in terms of plausibility -where plausibility is claimed to depend on a number of criteria such as ‘consistency, coherence, fit with background knowledge, simplificy, absence of gaps, and the number of unlikely assumptions that need to be made.’ While in the target article (as well as in previous work), Allen and Pardo seek to show the superiority of the relative alternative theory to probabilistic theories, they do not, however, set themselves the task to show that their plausibility-based version of explanationism should be prefered to versions of explanationsim that rely on alternative conceptions of explanatory goodness. Plausibility (as defenders of probabilistic approaches have rightly noted) is a remarkably vague concept. Moreover, Allen and Pardo’s attempt to render it more clear by appealing to different explanatory virtues remains uninformative unless they also provide a precise account of what these virtues are and how they are to be balanced. In addition, judgements of plausibility are controversially linked to judgements of justification (let alone truth). These problems make the need to provide an argument in support of linking explanatory value to plausibility, and plausiblity, in its turn, to epistemic value less than otiose.

Indeed, in domains other than law, the most influential explanationist theories do not tie up explanatorieness to plausibility. A prominent explanationist view, which has been recently proposed, is explanatory evidentialism, which weds explanationism with an evidentialist account of justification (McCain: 2013, Poston: 2014; McCain and Poston: 2017). In this view, the best explanation is the explanation that best fits the available evidence. Evidentialist explanationism is a combination of evidentialism and explanationism. According to evidentialism, one is justified in believing a proposition *p* if and only if *p* fits the evidence. The explanationist evidentialist analyzes the evidential fit or epistemic support relation in explanationist terms so that a proposition *p* is claimed to fit the evidence if *p* is part of the best explanation (Appley and Stoutenburg: 2017, 3070-3071). Another, related, alternative is explanatory coherentism, which ties up explanationism with a coherence theory of justification, so that the best explanation is the explanation that best satisfies the criteria of coherence (Psillos: 2002: 616-619; Thagard and Shelley: 1997; Harman: 1995; and Lycan: 1988).

Unlike the relative plausibility model, which identifies explanatory power with plausibility, both evidentialist and coherentist versions of explanationism are grounded on well-established theories of justification. This gives these views a distinctive advantage over the relative plausibility model. Both evidentialist and coherentist explanationism gives us good reasons to endorse conclusions of explanatory inferences as justified -namely, that such conclusions best satisfy evidentialist and coherentist criteria of justification, respectively. In contrast, the relative plausibility theory fails to be embedded in a comprehensive theory of epistemic justification and thus cannot provide a satisfactory explanation of why we should endorse conclusions of explanatory inferences -understood as inferences to the most plausible explanation, with any justificatory force.

While both evidentialist and coherentist versions of explanationism have been articulated with a view to justifying scientific beliefs, they may be successfully applied to the legal domain. In previous work, I have developed a coherentist approach to evidence and legal proof that aims to explain the justification of evidentiary statements within the framework of explanatory coherentism (Amaya: 2013 and 2015). Although, to the best of my knowledge, there has not been an effort to articulate and defend evidentialism explanationism into a theory of legal evidence and proof, the prospects of developing such a theory look promising. Thus, conceptions of explanationism other than the relative plausibility theory need to be explored and critically examined before certifying that the shift of paradigm from probabilism to explanationism results in the endorsement of the relative plausibility theory as the most adequate theory of evidence and legal proof. The relative plausibility theory, in short, is not the only explanationist alternative to probabilism and it might not even be (despite its virtues) the best available theory.

**5. Conclusions**

Allen and Pardo’s article -together with their previous work- has been critical in advancing an alternative to the highly problematic -and still vastly influential- probabilistic model of evidence and legal proof. Any scientific, legal (or for that matter, political) revolution has its trailblazers; Allen and Pardo’s pioneer work is undoubtedly pivotal for the crystallization of explanationism in the domain of evidence law. Since I fully share their objective of showing explanationism to be a more plausible framework for analysing issues of evidence and legal proof than probabilism, I cannot but enthusiastically applaud their effort to develop and defend, as they do in admirable detail in the target article, an explantionist model of evidence and legal proof. This defense, however, rests on an understanding of the paradigm change that is experiencing the field of evidence law that I find wanting. The objective of this comment has been to develop an alternative reading of the explanationist revolution. First, I have elaborated on the notion of revolution in evidence scholarship which, as Allen and Pardo correctly say, may be appropriately employed to explain the shift from probabilism to explanationism and argued that this shift may be proftably understood as an instance of a Hacking (rather than, as Allen and Pardo argue, a Kuhnean) type of revolution. Second, I have provided an account of the difference between probabilism and explanationism that -in contrast to Allen and Pardo’s position- situates the revolutionary change in a shift in the conception of rationality that is claimed to be adequate for the field of evidence law. Last, I have argued that the explanationist paradigm cannot be identified, as Allen and Pardo do, with the relative plausibility theory, which may, moreover, not be -notwithstanding its many successes- the best version of explanationism available.

**References**

Aarnio, Aulis (1984), ‘Paradigms in Legal Dogmatics: Toward a Theory of Change and Progress in Legal Science’ in *Theory of Legal Science*, A. Peczenick et al. (eds.), Reidel.

Amaya, Amalia (2013), ‘Coherence, Evidence and Proof,’ *Legal Theory*, vol. 19 (1).

Amaya, Amalia (2015), *The Tapestry of Reason: An Inquiry into the Nature of Coherence and its Role in Legal Argument*, Hart Publishing, Oxford.

Appley, Byran and Stoutenburg, Gregory (2017), ‘Two New Objections to Explanationism,’ *Synthese*, vol. 194.

Bueno, Otávio (2012), ‘Styles of Reasoning: A Pluralist View,’ *Studies in History and Philosophy of Science*, vol. 43.

Chamizo, Jose A. (2018) ‘About Continuity and Rupture in the Hisory of Chemistry: the Fourth Chemical Revolution (1945-1966), in *Foundations of Chemistry: Philosophcial, Historical, Educational and Interdisciplinary Studies of Chemistry*, Springer, Dordrecht.

De Vries, Ubaldus (2013), ‘Kuhn and Legal Research,’ *Recht en Methode in Onderzoek en Onderwijs*, vol. 3 (1).

Hacking, Ian (1987), ‘Was there a Probabilistic Revolution, 1800-1930?’ in *The Probabilistic Revolution, vol. 1: Ideas in History*, L. Kruger et al. (eds.), MIT Press, Cambridge.

Hacking, Ian (2012), ‘Language, Truth and Reason: 30 Years Later,’ Studies in History and Philosophy of Science, vol. 43.

Harman, Gilbert (1995), ‘Rationality’ in E Smith and E Osherson (eds), *An Invitation to Cognitive Science*, Vol. 3 (Cambridge, MIT Press).

Humpreys, Paul (2011), ‘Computational Science and its Effects,’ in *Science in the Context of Application*, M. Carrier and A. Nordmann (eds.), Boston Studies in the Philosophy of Scince, vol. 274, Springer, Dordrecht.

Lycan, William, G.(1988) *Judgment and Justification* (New York,Cambridge University Press).

McCain, Kevin (2013), ‘Explanationist Evidentialism,’ *Episteme*, vol. 10 (3).

McCain, Kevin and Poston, Ted (2017), ‘The Evidential Impact of Explantory Considerations,’ in Kevin McCain and Ted Poston (eds.), *Best Explanations: New Essays on Inference to the Best Explanation*, Oxford University Press, Oxford.

Poston, Ted (2014), *Reason and Explanation*, Palgrave Macmillan, Basingstoke.

Psillos, Stathis, (2002) ‘Simply the Best: A Case for Abduction’ in AC Kakas and F Sadri (eds), *Computational Logic,* Berlin, Springer-Verlag.

Ramsey, Frank P. (1990), ‘Truth and Probability,’ in D. H. Mellor (ed.), *F. P. Ramsey, Philosophical Papers* (1926)*,* Cambridge University Press, Cambridge.

Schupback, Johah N. (2017), ‘Inference to the Best Explanation, Cleaned Up and Made Respectable,’ in Kevin McCain and Ted Poston (eds.), *Best Explanations: New Essays on Inference to the Best Explanation*, Oxford University Press, Oxford.

Schweber, Silvan S. (2016), ‘On Kuhnian and Hacking-Type Revolutions,’ in *Shifting Paradigms: Thomas S. Kuhn and the History of Science*, Alexander Blum et al. (eds.), Max Plank Institute for the History of Science, Berlin.

Stein, Edward (1996), *Without Good Reason: The Rationality Debate in Philosophy and Cognitive Science*, Oxford University Press, Oxford.

Tennie, Clauido, Call, Joseph, and Tomasello, Michael (2009), ‘Ratching up the Ratchet: On the Evolution of Cumulative Culture,’ *Philosophical Transactions of the Royal Society*, vol. 364.

Thagard, Paul and Shelley, Cameron (1997) ‘Abductive Reasoning: Logic, Visual Thinking and Coherence’ in ML Dalla Chiara, K Doets, D Mundici and J van Benthem (eds), *Logic and Scientific Methods* (Dordrecht, Kluwer).

Winther, Rasmus G. (2012), ‘Interweaving Categories: Styles, Paradigms and Models,’ *Studies in the History and Philosophy of Science Part A*, vol. 43 (4).