“Beauty is Truth and Truth Beauty”: How Intuitive Insights Shape Legal Reasoning and the Rule of Law

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I. Introduction.

“Beauty is Truth and Truth Beauty”
John Keats (1795 - 1821)

Scholars have recognized since the 18th Century that human thought proceeds in two distinct processes – what psychologists call “Type 1” (intuitive) and “Type 2” (logical) thought. Type 1 usually dominates in the arts, with Type 2 playing a supporting role at best. However, Type 1 also hosts the brain’s capacity for pattern recognition, making it a reliable guide in fields where truth is defined by logic and experiment. Research in physics and mathematics often consists of extending Type 1 intuitions into Type 2 logical proofs.

The hallmark of Type 1 processes is the mysterious aesthetic emotion that Keats called “beauty.” Modern brain scans confirm that the perception of beauty in art and mathematics is located in nearly identical regions of the brain. This makes it natural to ask how legal thought compares to art and mathematics. While legal scholars typically assume the primacy of logic, critics since Justice Holmes have protested that many cases are actually decided by the unconscious and intuitive methods that Judge Posner calls “practical reasoning.”

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2 Thanks to friends of my misspent youth at Lasky, Haas, Cohler & Munter (Mitchell Chyette), Brown & Bain (Kenneth S. Rosenblatt) and Harvard Law School (Randall K. Morck) who kept my interest in this topic alive. Additional thanks to Daniel Chen, Neal Gandal, and Alex Karepetian for their insightful comments.


4 For a recent book-length account, see generally, Daniel Kahneman, Thinking, Fast and Slow (Farrar, Straus & Giroux: 2011 epub ed.) Kahneman provides a useful table comparing the two modes at p. 112.

5 As Holmes famously declared, “The life of the law has not been logic; it has been experience...The law ... cannot be dealt with as if it contained only the axioms and corollaries of a book of mathematics.” O.W. Holmes Jr., The Common Law, (Little, Brown & Co: 1923 [1881]), at p. 1. Prof. Hawkins has persuasively argued that the word “experience” denotes subconscious intuition and, conversely, that Holmes saw a formalist reasoning as “a vain attempt to systematize intuitively developed law.” Brian Hawkins, “The Life of the Law: What Holmes Meant,” Whittier Law Review, 33(2): 323-376 (2012).

6 Richard A. Posner, Law and Literature: A Misunderstood Relationship (Harvard: 1988) at p. 287 (“Between the extremes of logical, or scientific, persuasion and emotive persuasion lie a variety of methods for inducing justified true belief that are rational though not rigorous or exact. This is the domain of practical reason.”); see also, Richard
This article takes these insights seriously by analyzing legal reasoning and the institutions based on it in explicitly Type 1 terms. This marks a fundamental change from older approaches that try to construct jurisprudence exclusively from Type 2 logic. The shortcomings of the latter approach are particularly evident in the decades-long agenda to find an intellectually coherent middle ground between formalists who claim that legal texts are completely determinate, and realists who see judges as entirely unconstrained. While most lawyers agree that such a middle ground exists, we will see that formal philosophy-of-language accounts require ugly and ad hoc assumptions to explain it. This article argues that progress will be better served by acknowledging the existence of Type 1 processes and asking how they enter the law.

Similar changes are already underway in the humanities, where many scholars now stress that the subjective sense of beauty causes demonstrable changes in the brain. This immediately argues for theories that engage the “reading, aesthetics, and form” of texts at least as much as the postmodern fixation on politics and culture. This article similarly seeks a biologically accurate understanding of how lawyers write and interpret texts. That said, law poses special problems. The reason is that a successful legal theory, unlike literature, should point to a single best interpretation. This requires that experts reach reliably similar judgments, at least on average, regardless of the culture they were born into. This kind of universality is natural in the sciences: Given that there can be only one truth in the physical world, humans’ Type 1 intuitions must similarly converge or they would not be useful. We argue that lawyers who spend their lives drafting documents to constrain an uncertain future will develop similarly convergent intuitions in any society where lawyering exists as a discernible activity. The surprise is that the Type 1 emotion of beauty is similarly universal for entirely subjective choices. For example, psychologists have shown that artists in small Japanese villages reliably make the same aesthetic choices as American Ivy League experts. This implies that lawyers may have similarly aesthetic preferences for some doctrinal choices compared to others.

No matter what its origins, the existence of universality has important normative implications. In particular, it argues that all lawyers share at least some common Type 1 beliefs. This

A. Posner, *How Judges Think* (Harvard: 2008) at pp. 9 (arguing that judicial discretion judges “is a consequence of legalism’s inability in many cases to decide the outcome (or decide it tolerably ...), and the related difficulty, or impossibility, of verifying the correctness of the outcome, whether by its consequences or its logic.”), 12 (“Legalist tools – including those most hallowed methods of reasoning by analogy and strictly interpreting statutes and constitutions – come up short: The first is empty and the second has, despite appearances, a large discretionary element.”) and 47 (“Legalists acknowledge that their methods cannot close the deal every time...There are too many vague statutes and even vaguer constitutional provisions, statutory gaps and inconsistencies, professedly discretionary domains, obsolete and conflicting precedents, and factual aporias.”).

breathes new life into the claim that cases can be decided according to standards that are safely divorced from personal bias and politics.

We proceed as follows. Section II reviews historic attempts to locate law within the more general problem of text interpretation. Section III reviews what scientists have learned about Type 1 thought processes, including mounting evidence that they provide a reliable guide to truth in such fields as visual art, literature, physics, and mathematics. We also describe evidence for a modest universality whereby experts from widely different cultural and educational backgrounds often reach the same aesthetic judgments. Section IV presents evidence for Type 1 reasoning in law and traces how it enters doctrine to decides cases. Section V reviews 19th Century arguments that aesthetic judgments provide a reliable guide to law and updates them to accommodate the more modest versions of universality that science has documented. It also asks how the prevalence of Type 1 thought frames lawyers’ everyday experience of practice. Section VI asks how legal institutions amplify universality’s weak ex ante consensus to generate stable, predictable rules. Section VII extends these arguments to make policy recommendations. Section VIII provides a brief conclusion.

II. The Law-and-Literature Debate

Since the 1980s, legal scholars debating the determinacy of legal texts have almost always located their arguments within the broader problem of literary theory. The resulting law-and-literature movement is conventionally dated to Prof. Levinson’s article arguing that humanities scholars could help lawyers establish a coherent “set of rules” for estimating the “hardness” of meaning against conflicting interpretations.8 This was both natural – legal documents are plainly texts – and practical, since literary theory had long since moved beyond law’s arid debate between legal realists who stress the “reality of disagreement among equally competent speakers of the native language”9 on one side, and formalists “infatuate[ed] ... with the possibility of a science of criticism”10 on the other. Despite this, Levinson was not particularly hopeful, concluding with the gloomy assessment that attempts to find meaningful patterns in precedent remain “a supreme act of faith.”11

Two years later Prof. Dworkin seconded Levinson’s claim that literary theory could help scholars escape law’s “...flat distinction between description and evaluation.”12 At the same time, he


9 Id. p. 379.

10 Id. at p. 380.

11 Id. at pp. 402-403.

warned that these theories could also make law less determinate, creating “hard cases” that judges would have to decide “as a question of political theory,” although he hoped that judges would choose these theories based on natural “fit” rather than personal politics. At least in retrospect, Dworkin’s decision to invoke the aesthetic concept of “fit” was an early hint that Type 1 reasoning could limit discretion.

At this point literary critic Stanley Fish entered the debate. Probably his most lasting contribution was to frame the problem in formally Type 2 terms as “...a few basic questions in the philosophy of language.” He then argued that an “interpretative community” could narrow the list of permissible interpretations. However, this did not really supply the middle ground that Levinson and Dworkin had wanted. On the one hand, it implied that an unelected elite would decide for everyone, a possibility that Levinson had rejected. On the other hand, no one could say exactly how much narrowing would occur since this necessarily depended on who joined the community. This gap was particularly painful since the existence of just one conflicting interpretation could leave judges unconstrained.

Watching the argument play out, Judge Posner protested that the law/literature analogy had been misguided all along. Literature, he said, was aesthetic and profited from ambiguity. But law was different, and much more like everyday speech: “If a message is garbled ... you try to glean from everything you know about [the sender] and the circumstances of the failed message what he might have meant ... the correct analysis is an intentionalist one.” By comparison, the kinds of clever interpretive ambiguities that Fish and the legal realists celebrated were more “obtuse ... than ingenious.”

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13 Id. at pp. 160 (“There is, of course, no algorithm for deciding whether a particular interpretation sufficiently fits that history not to be ruled out ... as a question of political theory.”) and 161 (“[A]ny particular judge’s theory of fit will often fail to produce a unique interpretation.”)


15 Levinson, supra note 8 at p. 384 (While one can appeal to “Kuhnian communities” of shared conventions, we should be “acutely aware of the contingency of such conventions.”) Fish himself seemed to welcome such power, arguing that literary theory “might play a role in altering the way in which the legal world is constructed by altering the way in which legal actors conceive of their activities.” Fish, supra note 14 at p. 308.

16 Richard Posner, Law and Literature, supra note 6 at p. 240.

17 Id. at p. 242. Posner’s specific ire was directed to a hypothetical argument that the Constitution did not literally require presidents to be 35 years old, but only have “… the maturity and station in life of an average 35 year old.” Id.
Fish shot back that Posner’s attempt to create a special subcategory for legal texts changed nothing: After all, philosophy-of-language arguments applied to all texts whatsoever. Formally, this bit of Type 2 logic was irrefutable. All the same, Posner had a point. While philosophy-of-language arguments showed that variant interpretations were possible, they said nothing at all about which ones were likely. This created a deep conflict with the nearly universal perception that some legal and also literary interpretations are enormously better than others. This suggested that merely “better” readings could meaningfully constrain judges even when tighter constraints were not feasible.

Thirty years later, legal scholars continue to wrestle with essentially the same arguments. In the meantime, literary theory has begun moving beyond narrow philosophy-of-language approaches to consider empirical evidence that humans’ response to reading produces measurable changes in the brain. This suggests that texts matter, rebutting accusations that literature is merely the “…constructed handmaiden of sociopolitical power.” The point is even more promising for law, where it is reasonable to ask whether Type 1 insights might favor some interpretations compared to others. Remarkably, recent science strongly supports this conjecture.

III. The Science

Critics have cited the subjective emotion of beauty as evidence for an underlying unity in how humans understand painting, music, literature, and the other “sister arts” since the 18th Century.

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18 Stanley Fish, Doing What Comes Naturally, supra note 14 pp. 303-304 (rejecting Posner’s distinction because interpretation is “indistinguishable from what you think, in advance, the text is for and also from what you take to be your relation to it.”) (emphasis original).

19 Paul B. Armstrong, How Literature Plays with the Brain, supra note 7 at p. 9. (“The fact that interpreters may have interesting, productive disputes about textual meaning does not prevent agreement among practitioners whose authority has been accredited in various ways that some interpretations are less credible than others”); Levinson at p. 384 (In law, not even “radical critics defend the position that any interpretation is as good as any other.”)

20 As Judge Posner observes, even pragmatist judges are acceptable provided they are “… boxed in, as other judges are, by [factors including] a due regard for the integrity of the written word in contracts and statutes.” Richard A. Posner, How Judges Think (Harvard University Press: 2008) at p. 13.


23 G. Gabrielle Starr, Feeling Beauty: The Neuroscience of Aesthetic Experience (MIT: 2013) at p. 4 (“Most theories of the Sister Arts have focused resolutely and explicitly on the subjective dimensions of response”) and Id. at xii-xiii (“[T]he idea that there is a single autonomous domain in which we might discuss or reason about the visual arts,
However, the same perception also occurs in objective subjects like mathematics\textsuperscript{24} and physics\textsuperscript{25} along with a wide variety of mundane tasks.\textsuperscript{26} Probably the most instructive example is chess, where masters use learn to “Type 1” reasoning to identify the most important and creative possibilities with a single glance.\textsuperscript{27} Such examples argue that unconscious intuition is not just aesthetic, but also plays a key role in practical problem-solving.

The outlines of what we now call Type 1 thought were already clear by 1821. That year, the poet and political radical Percy Bysshe Shelley wrote a celebrated essay contrasting “reason,” which he argued was limited to “algebraical relations” between known thoughts,\textsuperscript{28} with a second faculty of “imagination” that was alone capable of making other thoughts from existing ones,\textsuperscript{29} and deploying them “according to a certain rhythm and order which may be called the beautiful and good.”\textsuperscript{30} Anticipating Freud by half a century, he went on to link imagination with

\begin{itemize}
\item literature, music, imagination, beauty, the sublime, or even the vulgarly awful is an invention of the eighteenth century.
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\textsuperscript{26}Daniel Kahneman, \textit{Thinking Fast and Slow}, \textit{supra} n. 4 at pp. 247-48 (Firefighters can intuit exactly when a house will collapse without knowing how they do it).

\textsuperscript{27}\textit{Id.} at pp. 249-250 (“high level chess players have seen so many situations they can read the board at a glance even for new situations; the moves that come to mind are always strong and sometimes creative.”)


\textsuperscript{29}\textit{Id.} at p. 480. \textit{See also} p. 503 (imagination allows humans to create “new materials of knowledge, and power, and pleasure.”)

\textsuperscript{30}\textit{Id.} at p. 503.
what we now call the unconscious.\textsuperscript{31} Less convincingly, Shelley also anticipated Jung by claiming that aesthetic insights were universal, originating in the mind of God.\textsuperscript{32}

Two centuries of scientific research have refined and formalized these insights. Today, the characteristic Type 1 operations specialize in pattern recognition and the mental processes variously called “judgment,” “intuition,” and “aesthetics.” These are very unlike the brain’s alternative Type 2 thought process, variously called “reason” and “logic.”\textsuperscript{33} The hallmark of the latter is that it can be articulated, reduced to unambiguous instructions and, as Alan Turing predicted, implemented by machines.\textsuperscript{34} Crucially, much of the best evidence remains subjective: Type 1 and Type 2 methods simply feel different. For example, aesthetic reasoning is routinely described as unconscious, automatic, and having little sense of effort or control.\textsuperscript{35} This means that even when we recognize a pattern, we often cannot say why. Sometimes the mind’s logical, Type 2 methods can replicate the insight, sometimes they can’t.\textsuperscript{36}

This section reviews what scientists have learned about the nature of Type 1 judgments, focusing on the surprising result that artists from different societies often make the same aesthetic judgments, regardless of the cultures that they were born into.

\begin{footnotesize}
\textsuperscript{31} Id. at p. 506 (the poetic imagination “differs in this respect from logic, that it is not subject to the control of the active powers of the mind, and that its birth and recurrence have no necessary connection with the consciousness or will.”)

\textsuperscript{32} Id. at p. 485 (aesthetics are defined “as existing in the mind of the creator, which is itself the image of all other minds.”)


\textsuperscript{34} Wikipedia, “Turing Machine,” https://en.wikipedia.org/wiki/Turing_machine. Turing’s logic was nicely anticipated by the poet W.B. Yeats, who noticed after refusing a political debate “…that all the arguments which had occurred to me earlier were said by somebody or other. Logic is a machine; one can leave it to itself, and unhelped it will force those present to exhaust the subject. The fool is as likely as the sage to speak the appropriate answer to any assertion. If an argument is forgotten, someone will go home miserable. You throw your money on the table, and you receive so much change.” Barry Shiels, W.B. Yeats and World Literature: The Subject of Poetry at 166 (Ashgate: 2015) (quoting Yeats’ 1908 journal entry).

\textsuperscript{35} Daniel Kahneman, Thinking, Fast and Slow, supra note 4 at p. 79.

\textsuperscript{36} Remarkably, the dichotomy between logic and pattern recognition also applies to machines. Computers built around human-supplied Type 2 logic are wonderful at arithmetic but do a terrible job of recognizing patterns. Conversely, “neural network” architectures that learn by interacting with the environment have the opposite problem: They are good at recognizing patterns but incapable of long division. Carlos E. Perez, Artificial Intuition, supra note 33 at p. 96.
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A. Type Intuition: Aesthetics, and Fast Thinking

Prof. Armstrong argues that Type 1 reasoning enters reading through the “recognition of patterns.” This implies that readers move “both upward (by assembling details into overall patterns) and downward (by using the overall pattern to make sense of details).” We argue in Section IV that legal reasoning similarly amounts to an extended exercise in finding and comparing patterns across different levels of text.

*Brain Imaging.* We have already said that the perception of beauty has been reported not just for art, but also for mathematics, physics, and a wide variety of practical tasks. The advent of brain imaging has given this subjective claim a physical basis in the brain. So far, most of this work has concentrated on mapping regions that respond to visual art. However images of the brain’s aesthetic responses to music and mathematics turn out to be closely similar. More generally, brain imaging experiments have led researchers to conceptualize Type 1 reasoning as a process of linking neurons together to detect patterns. Whereas most sensations are simply noise, coherent patterns stimulate the brain’s pleasure centers by confirming existing neural

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38 G. Gabrielle Starr, *Feeling Beauty: The Neuroscience of Aesthetic Experience* (MIT: 2013) at 34 (“The first neuroscientists interested in aesthetics were primarily concerned with visual art, for vision, as the sense most accessible to behavioral evaluation, has been the most robustly understood area of perception.”).


41 For the foreseeable future, the images are too crude to identify individual neurons, or resolve the millisecond-by-millisecond changes that drive brain function. Paul B. Armstrong, *How Literature Plays with the Brain*, supra note 7 at p. 4; see also, Keith Sawyer, “Brain Imaging: What Good Is It? Brain Imaging Promises Much, But Offers Little (At Least, So Far),” *Psychology Today* (Oct. 21 2013), available at https://www.psychologytoday.com/blog/zig-zag/201310/brain-imaging-what-good-is-it.

42 Armstrong, *How Literature Plays with the Brain*, supra note 7 at p. 15 (“Harmony and dissonance in art are defined not only by each other but also by their opposition to a third concept – noise … The human brain’s capacities for synthesis are not unlimited … Some stimuli simply are not noticed. If they are perceived but cannot be processed, they are noise.”)
connections and forming new ones. This has obvious survival value in a world where it is important both to exploit previously-discovered patterns and to consider new ones.

The brain’s other characteristic strategy is to recycle established circuits for new tasks. But in that case reasoning for the new purpose remains hostage to maintaining the original function – A brain that uses the same circuits for tort law and crossing the street will stop improving the former when it compromises safety. This suggests that we may sometimes find ourselves locked into certain perceptions, although the brain often finds workarounds.

Neural Networks. Finally, our understanding of Type 1 pattern recognition has been deeply influenced by artificial intelligence research. While neural network computers do not claim to duplicate actual brain architectures, they nevertheless show what happens when large numbers of neuron-like (multiple input, non-linear response) circuits are wired together to find patterns. Unlike traditional approaches based on Type 2 logic supplied by humans, neural networks learn by trial-and-error, constantly rewiring themselves to make pattern detection more efficient. But while they sometimes make predictions that no human can duplicate, their reasoning often cannot be articulated or even understood by us. Indeed, some make

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43 Id. at p. 49 (“There is interesting experimental evidence that the making and breaking of neuronal connections stimulates the expression of neurotransmitters strongly associated with pleasure in ways that no doubt affect aesthetic experiences.”)

44 Reading short stories activates the same regions that the reader would use if they were performing, imagining, or observing the protagonist’s actions in real life. Nicole K. Speer, Jeremy R. Reynolds, Khena M. Swallow, and Jeffrey M. Zacks, “Reading Stories Activates Neural Representations of Visual and Motor Experiences,” Psychological Science 20(8): 989–999 (2009).

45 Armstrong, How Literature Plays with the Brain, supra at note 7 pp. 36-37 (Girl whose normal left brain region for recognizing letters had been damaged was able to develop the mirror image right brain region for the same purpose.)

46 Carlos E. Perez, Artificial Intuition: The Improbable Deep Learning Revolution (2018). Readers can build intuition about how neural networks work by reading Anderson’s lucid, albeit rigorous account of the so-called “Perceptron” machines built in the 1950s. James A. Anderson, An Introduction to Neural Networks (MIT Press: 1995). The basic architecture featured three types of element: Sensors (S) which detect signals from the external world, Associative Cells (A) that are wired to multiple sensors to detect simple patterns (e.g. lines, triangles) and Relational Cells (R) that are wired to multiple A cells to detect higher-order patterns like houses or fire trucks. Crucially, the A and R cells exhibit “threshold,” i.e. only fire when incoming signals exceed some predetermined value. The machine then evolves to maximize the probability that one and only one R cell will fire when the desired pattern appears. This is done by rewiring the connections between the A and R cells each time detection fails. Specifically, A cells that sent out a positive signal produce a higher output the next time, while A cells that sent out a negative signal have their strength reduced. This makes it more likely that the relevant R cell will guess right next time. Id. at pp. 220ff. The same basic architecture can also be modified to solve more abstract problems, for example creating categories that to parsimoniously distinguish different types of events. Id. at pp. 209-238.
predictions that no human can duplicate. What makes this strange is that every neural network can be formally reduced to a set of linear algebra equations. Despite its formal clarity, the mathematics is much too complicated for our Type 2 selves to understand.

B. Universality

Philosophy-of-language arguments have difficulty explaining why one interpretation should be better than any other. An improved theory must add assumptions that break this symmetry. Fish’s suggestion of an elite interpretive community is one (unpalatable) way to do this. This article starts from different evidence showing that certain judgments are universal, i.e. that human experts often make the same Type 1 choices no matter what culture they were born into. Crucially, this universality implies that experts from any one country share common ground no matter how much they disagree about culture and politics.

Objective Problems. The idea that Type 1 perceptions in fields like physics or mathematics are universal seems entirely reasonable. We have already said that Type 1 methods are optimized to spot patterns. In fields where the physical world defines a single truth, any sense of beauty which reliably points to that truth must similarly converge on a unique pattern.

Aesthetic Convergence. The harder question is whether purely aesthetic responses can be similarly universal. Psychologists first proposed experiments to probe how humans make aesthetic judgments in the 1870s. However early researchers soon found that average people do not share aesthetic judgments across cultures. This slowed research until Prof. Irvin L. Child

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47 Fabio Ciucci, “AI and Deep Learning, Simply Explained.” KD Nuggets (July 2017) (Neural network program trained on data from 700,000 patients can predict schizophrenia onset better than humans.)

48 Id. (machine learning “computations are visible, but too many to make a human-readable summary.”)


took a second look in the 1960s. While Child confirmed that lay opinion does indeed depend on culture, this was not true for experts.

Child’s method depended on asking native artists to compare similar paintings. In each case, American experts had overwhelmingly agreed that one design was aesthetically superior to the other. In his most famous study, Child showed pairs of both abstract and representational paintings to thirty-six Japanese potters in small rural villages. They agreed with Ivy League American experts 63 percent of the time. Significantly, the odds of this happening by chance were less than one percent. By comparison, the same Ivy League experts’ chances of agreeing with a Connecticut high school student were just 47 percent – indistinguishable from a simple coin toss. Child and his coauthors went on to document similar results for isolated communities in Japan, Fiji, West Africa, Ecuador, Peru, and Puerto Rico. Subsequent

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51 *Id.* at p. 349 (collecting pre-Sixties literature and concluding that psychologists had tried experimental tests of aesthetic relativity “to an astonishingly small degree.”) Child taught his introductory psychology class to me and several hundred other Yale freshmen in 1975.

52 *Id.* at p. 350. Child took great pains to test experts who had never been exposed to Western culture – a process much easier in the 1960s than it is today.


54 *Id.* at p. 32.


56 C.S. Ford, E Terry Prothro, and Irvin L. Child, “Some Transcultural Comparisons of Esthetic Judgment, *Journal of Social Psychology* 68:19-26 (1966) (six subjects agreed with American experts 78% of the time; significant at the one percent level). The authors also found a similar trend among four craftsmen from the Greek Islands, but this was statistically insignificant. *Id.* at pp. 23-25.

57 Child and Siroto, note supra at note 50, p. 351. The agreement on African masks was significant at the one percent level.

studies have generally confirmed these findings, but added little beyond trying to localize universality in particular parts of the image.

Child’s universality only occurs in specific circumstances. First, it is limited to experts who have spent large parts of their lives making aesthetic choices. Second, the effect is modest, just ten percent more than a coin toss. This makes it nearly invisible in everyday life unless and until humans organize surveys to look for it. Third, Child’s method uses similar images and therefore makes no claim to large choices, say that a Picasso is superior to an African folk mask.

**Origins.** It is natural to ask what causes universality. Given that the effect only applies to experts, learning must play a role. This immediately rules out explanations in which evolution has hardwired aesthetic preferences directly into the brain. Instead, Child argued that artists learn by contemplation, independently discovering “similar facts about the adequacy of particular works for satisfying aesthetic interests.” However, this still left the question of what generates these “aesthetic interests” to begin with. This was probably unanswerable in the 1960s. Today, however, we know that the brain’s pleasure centers reward us for forming new neural connections and using old ones. In this view, art is a form of play designed to question our established views of the world and try out new ones.

For now, at least Child’s hypothesis is not the only possibility. Aesthetic convergence could also be driven by a self-selection effect in which certain personality types preferentially become potters. In principle this can be checked by testing how peoples’ aesthetic responses change before and after they become experts, although little work has been done in this area.

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59 Julian P. Renoult, “The Evolution of Aesthetics: A Review of Models,” pp. 271-300 in *Aesthetics and Neuroscience: Scientific and Artistic Perspectives*, Zoï Kapoula and Marine Vernet (eds.) (Springer 2016) at p. 282 (“Many subsequent studies have concurred with this view that aesthetic preferences and beauty are, at least in part, universal and innate.”). One recent study shows that art students are much more likely than lay audiences to choose abstract paintings by professional painters over similar works by children and animals. Though seemingly unaware of Child’s work, their result neatly reproduces his strong distinction between experts and lay audiences. See Angelina Hawley-Dolan and Ellen Winner, “Seeing the Mind Behind the Art: People Can Distinguish Abstract Expressionist Paintings From Highly Similar Paintings by Children, Chimps, Monkeys, and Elephants,” *Psychological Science* 22(4) 435–441 (2011) at p. 440 and Fig. 4.


61 Child and Siroto, supra note 50 at p. 33.

62 Paul B. Armstrong, *How Literature Plays With the Brain*, supra note 7 at p. 49.

63 Child and Schwartz did perform a small scale experiment in which asked nineteen students to examine paired images for eight hours apiece. While they found no evidence of learning, this was not surprising. Child’s artists had
Education and Socialization. Child showed that students could be taught to improve their test scores by simulating taste, i.e. guessing what experts would say. However, scores rose faster when students’ taste genuinely improved. Child did this through the classic methods of art criticism, i.e. by giving students Type 1, non-algorithmic hints about what to look for.

Child’s universality research was limited to art. However anecdotal evidence suggests that the sense of beauty in physics similarly flows from prolonged contemplation without any need for special education or indoctrination. As the physicist P.A.M. Dirac remarked, people who study mathematics “usually have no trouble appreciating it.”

IV. Type 1 Thinking in Law

We have seen that Type 1 insights play a significant role in fields ranging from the visual arts to mathematics. However, the relative importance of Type 1 and Type 2 processes varies dramatically by discipline. This makes it natural to see law as an intermediate case along a continuum between art (principally Type 1) to science (mostly Type 2). This section collects invested orders of magnitude more time making aesthetic choices. Child and Schwartz, “Exposure to Better and Poorer Art, supra at n. 49.

64 Id. at p. 112. (school children who had been told which art experts preferred could be taught to distinguish “fairly well” which art was considered “better.”)

65 Child found that students made “impressive” progress when he showed them seven principles, each illustrated with pairs that did and did not follow the suggested advice. Irvin L. Child and Rosaline S. Schwartz, “Exploring the Teaching of Art Values,” *The Journal of Aesthetic Education* 1(2) (1966), pp. 41-54. Child’s principles were: Selectivity, organization, consistency, variety, aliveness, use of decoration, and appropriate use of elements. Id. at 50-51. These cryptic labels were explained through detailed – but far from algorithmic – definitions which demand further judgment from the reader. For example, Child defined “Use of Decoration” as follows: “Good decoration must suit the object. It must not ‘fight’ with the object as a whole in line, color, textures, shapes, or forms. Good decoration must seem an essential part of the object or work of art and not look ‘stuck on’ as an afterthought. Good decoration does not ask attention for itself but permits the entire object or work of art to remain most important.” Id.


I cannot find a piece of mathematics beautiful unless I first understand it properly – and that means it can take a while for me to appreciate the aesthetic qualities. I don’t think this unique to mathematics. There are pieces of music, buildings, pieces of visual art where I have not at first appreciated their beauty or elegance – and it is only by persevering, by grappling with the ideas, that I have come to perceive the beauty. For me, one of the joys of teaching undergraduates is watching them develop their own appreciation of the beauty of mathematics.

Vicky Neal, “Mathematics is Beautiful (No, Really),” *supra* note 24.
evidence for Type 1 reasoning in law and traces the specific mechanisms that let it decide particular cases.  

A. The Subjective Experience of Law

Legal realism’s most notorious failing is that it ignores how lawyers actually practice and experience law. Yet this was historically the first and most important clue that common brain functions were at work in fields from painting to physics. We begin with lawyering’s most basic and defining function: Writing.

Writing. Non-legal writing is already deeply entangled with Type 1 thought. This is evident from, among other things, the fact that finding the right words, is largely unconscious, brings pleasure, and is almost never reducible to Type 2 algorithms. That said, we seldom stop to realize just how much work Type 1 processes do. Consider this deceptively simple phrase: “A lovely little old rectangular green French silver whittling knife.” Move a single word and you immediately see that something has gone badly wrong. Yet no one ever taught you an explicit Type 2 rule, and figuring it out is tedious – so tedious in fact that you begin to wonder how the mind manages to write whole chapters and books. Sometimes this processing is purely aesthetic. But it also extends to knowing one’s audience and how best to communicate.

Legal Writing. It is difficult to generalize about how writing’s Type 1 content changes when the focus shifts to law. On the one hand, legal documents can be highly algorithmic, most notably in architecting elaborately interlocking definitions and borrowed terms of art. At the same time, they also pose Type 1 problems that lay writing does not. The characteristic lawyer activity is

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67 Brain imaging researchers have yet to investigate legal reasoning. However, the relevant techniques are being developed, most notably in experiments that image subjects’ brains in real time as they proceed through short stories. Nicole K. Speer, Jeremy R. Reynolds, Khena M. Swallow, and Jeffrey M. Zacks, “Reading Stories Activates Neural Representations of Visual and Motor Experiences,” Psychological Science 20(8): 989–999 (2009) The additional difficulty for law is that asking subjects to make aesthetic choices for concepts like “nonobviousness” requires so much education that they could be inadvertently socialized to give particular answers. One workaround would be to look for universality in self-contained documents like contracts.

68 As Prof. Solum remarks, “… from a perspective internal to the law, the claim that judging is politics all the way down seems absurd, because it fails to account for the phenomenology of judging. Judges, lawyers, and legal scholars do not experience legal decisionmaking as the exercise of discretion based on politics. This point is actually common ground between legal scholars as diverse as Professor Ronald Dworkin, who believed that there was a legally correct outcome in every dispute, and Professor Duncan Kennedy, who defends the view that law is deeply political.” Lawrence B. Solum, Book Review: “The Positive Foundations of Formalism: False Necessity and American Legal Realism,” Harvard Law Rev. 127: 2464 – 2497 (2014) at pp. 2473-74.


70 English adjective/noun combinations are invariably ordered opinion-size-age-shape-color-origin-material-purpose-noun. Id.
writing rules — for example legislation, bilateral contracts, and court opinions — that will be interpreted by strangers to decide disputes that are only imperfectly anticipated. While there are better and worse ways to do this, they all depend on reducing massive amounts of life experience to Type 1 insights. But once lawyers learn to write, it is only natural that the brain would commandeer the same circuits to interpret what other lawyers mean. Like Child’s potters, the artist becomes the critic. Finally, the circle closes with lawyers recycling their interpretive experience to improve their drafting.

All of this makes lawyers different from the average educated layman. For us, writing is an installment in what Dworkin saw as an endless chain of documents.71 It is not enough to memorialize the present: We also consider how our words could change the interpretation of earlier documents, and misused by future ones.72

Universality. We have argued that science intuitions converge because there is only one physical world. We cannot know whether there is similarly some uniquely best way to write legal documents. But if there is, there cannot be many, and we should expect practitioners to converge on similar lessons in any society where “lawyering” is a discernible activity. In the modern world this arguably includes every nation on earth.73

The deeper question is whether universality goes beyond these shared experiences. Child’s work suggests that we should expect aesthetic intuition to operate even when the experience

71 Dworkin, supra note 12 at pp at pp. 158-162.

72 The depth of these professional instincts is most visible when lawyers collaborate with educated lay people. For the past few years I have worked with academic biologists to screen proposed experiments against so-called “Ethical, Legal, and Social Implications.” Given that our opinions are preserved with an eye to publication, the overall purpose closely resembles a common law court. Yet my lay colleagues seldom see this. Some offer explanations that “prove too much” by facially invalidating large swathes of federal law, or else framing rules that would allow almost any future experiment to go forward. Others give opaque explanations that say almost nothing about what the panel would accept next time. And still others propose fact tests that would be difficult or impossible to implement in practice. My point is not that I handle these issues better than my colleagues, though I think I do. Rather, it is that they do not see these pitfalls in the first place.

of lawyering teaches no life lessons at all. The joy which many formalists take in verbal gymnastics points strongly in this direction.\textsuperscript{74}

\textbf{Normative Implications.} The existence of universality across countries implies that lawyers within any one country share common ground about how to interpret legal documents. Furthermore, this ground must exist despite the deep conflicts over values and goals that all societies face. This makes any standards based on this common ground completely democratic, at least if we assume that laypeople would agree with the experts given sufficient time and study. This normative/democratic argument is sufficiently important that we should worry about possible loopholes. The first is empirical. Pending further research, universality could still turn out to be a selection effect, \textit{i.e.} that legal careers attract people whose values are systematically different from average humans. In that case, agreed standards among lawyers would not represent the broader society after all. Second, assuming that universality is learned, its lessons cannot be broader than the experience of lawyering itself. This unavoidably includes a bias toward individuals’ rights and goals. This could sometimes slant legal reasoning toward, say, capitalist values compared to socialist ones.

\textbf{B. Mechanics: Finding Alternative Patterns.}

We now ask how Type 1 intuition enters legal reasoning to decide cases. Unlike most of the existing literature\textsuperscript{75}, we decline the (probably impossible) task of reducing legal judgment to completely determinate, Type 2 rules. This section emphasizes how legal research use Type 1 methods to find new patterns within legal texts.

Suppose that you represent a client, and that your opponent has cited some rule that establishes liability. In the physical world there can only be one truth, ensuring that every pattern must be consistent with every other pattern. Legal doctrine, on the other hand, is assembled piecemeal by many hands over time. This implies that patterns can and often will be

\textsuperscript{74} Consider, for example, Federal Circuit Chief Judge Helen Nies’ argument that the tests for patent law’s “non-obviousness” and “substantiality” requirements should be identical. \textit{Roton Barrier, Inc. v. Stanley Works}, 79 F.3d 1112, 1128 (Fed Cir. 1996) (Nies, J., concurring). This made little sense from a policy or statutory interpretation perspective, since legal standards that address distinct economic problems should normally be independent of one another. See Ted O’Donoghue, Suzanne Scotchmer, and Jacques-François Thisse, “Patent Breadth, Patent Life, and the Pace of Technological Progress,” \textit{Journal of Economics and Management Strategy} (2004) (analyzing optimal pairings of “non-obviousness” and “substantiality” standards for different industries). But it did let Nies argue that “[a] substitution in the patented invention cannot be both nonobvious and insubstantial.” Here at least, the pleasure of an attractive syllogism seems to have outweighed all other considerations.

\textsuperscript{75} For an exhaustive survey of the existing jurisprudence literature, see, \textit{e.g.}, Center for the Study of Language and Information, \textit{Stanford Encyclopedia of Philosophy}, “Precedent and Analogy in Legal Reasoning” (June 20, 2006) available at \url{https://plato.stanford.edu/entries/legal-reas-prec/}.
inconsistent. The advocate’s job is to find a pattern that favors her client and persuade a court that this version is the attractive one.\textsuperscript{76}

There are basically three ways for legal researchers to develop patterns. First, the advocate can drill down into particular words and phrases, the same tactic that led Bill Clinton to argue, “It depends on what the meaning of the word ‘is’ is.”\textsuperscript{77} This is often fairly easy, since dictionaries invariably offer several synonyms for every definition, each of which recursively leads to still more definitions and synonyms.

Second, acts that are forbidden by one rule law may sometimes be authorized and even required by other bodies of law. Here the main difficulty is to find a second rule broad enough to cover the behavior at issue.\textsuperscript{78} Sometimes this can be easy. For example, intellectual property gives recipients a “lawful monopoly,” while antitrust law holds that some (poorly-specified) business methods for exploiting patents are illegal. The result is that there is no gray area: if you guess wrong you not only lose your intellectual property reward, you commit a felony.\textsuperscript{79}

Finally, advocates can step back to ask whether the proposed interpretation conflicts with the statute’s other provisions or overall purpose. Such inconsistencies are fairly common since no complex text is ever entirely consistent and legislators are often careless.\textsuperscript{80} More fundamentally, different sections may be drafted by different legislators with different intent, so that the overall statutory scheme may never have existed in any one mind at all. Then too, legislators cannot anticipate every fact pattern, so that judges sometimes find themselves

\textsuperscript{76} Scholars have long recognized this incoherence, perhaps most famously in the so-called “canons of construction” for interpreting statutes. Prof. Llewellyn famously argued that every canon has a counter-canon, so that judges end with the same discretion they had to begin with. Karl Llewellyn, “Remarks on the Theory of Appellate Decisions and the Rules or Canons About How Statutes Are to Be Construed,” Vand. L. Rev. 3:395 (1950)


\textsuperscript{78} The potential for conflict grows when courts are permitted to include supplemental sources like common sense, custom and public policy in their inquiry. Richard Posner, Law and Literature, supra note 6 at p. 287. One of formalism’s most appealing features is that it limits judges to legal texts, making it that much harder to find conflicts.


\textsuperscript{80} “Statutes and constitutions are written in haste by busy people not always of great ability or diligence, and we are not privileged to ignore the hasty and hackneyed provisions and reserve our attention for the greatest. Moreover, they are products of a committee (the legislature) rather than of a single mind, and of a committee whose numerous members may have divergent objectives. To suppose that its every word probably has significance, that every statute is a seemless whole, misconceives the legislative process.” Posner, supra note 6 at p. 248.
confronting what Prof. Lessig calls “latent issues”81 that no one anticipated. The Mann Act82, RICO83, and federal Wire Fraud84 are all examples of statutes that turned out to cover many more fact patterns than Congress anticipated.

C. Legal Judgment: Choosing The Best Pattern

We have argued that advocates who look hard enough can usually find competing patterns. At this point, legal reasoning consists of picking the “best” or “most convincing” one. If law was a Type 2 activity good lawyers could stand at a white board and demonstrate the right choice to everyone. But of course, this is precisely what they cannot do.85 Instead, the best they can do is point out qualitative reasons to choose their pattern in much the same way that art critics admire some works compared to others.86 American lawyers typically refer to these characteristically Type 1 narratives as “judgment.” A legal realist would presumably call this a smokescreen. However, our “green knife” example argues that Type 1 thought often processes enormous amounts of data. Anecdotally, at least, most working lawyers seem to think that judgment conveys valuable information.87

Education and Socialization. Law-and-literature theorists often invoke “education” and “socialization” to inject democratic values into Fish’s otherwise elitist “interpretive community.” By comparison, universality argues for a humbler role in which education mostly points students to truths they would eventually discover anyway. As The Paper Chase’s Prof. Kingsfield says,

“I call on you, ask you a question and you answer it. Why don’t I just give you a lecture? Because through my questions, you learn to teach yourselves. Through this method of

81 Lawrence Lessig, Code (Basic Books 2006) at p. 189 (2d ed.)


85 See, e.g. Richard Posner, Law and Literature, supra note 6 at p. 287 (Logic is especially helpless in the face of “difficult and important cases.”) and p. 286 (“[M]any legal questions cannot be resolved by logical or empirical demonstration. After eighty-two years it is impossible to prove that Lochner was decided wrongly.”)

86 Cf. Id. at p. 288. (“But because the rational arguments of judges, like those of literary critics, fall short of being conclusive when the dispute is a difficult one to resolve by methods of reason.”)

87 Levinson, supra at p. 384 (in law, not even “radical critics defend the position that any interpretation is as good as any other.”)
questioning and answering, questioning, answering, we seek to develop in you the ability to analyze that vast complex set of facts that constitutes the relationships of members within a given society. Questioning and answering. At times you may feel that you have found the correct answer. I assure you that this is a total delusion on your part. You will never find the correct, absolute and final answer.”  

Conversely, universality should make us suspicious of more coercive approaches, for example the ferocity that first year law professors bring to instilling the doubtful idea that contract law is unthinkable without “consideration.” Given how deeply the concept has embedded itself in Anglo-American law, there is probably no great harm in this. But we should worry that the same power could be used to instill political and cultural agendas, even if universalism starts to undo these lessons as soon as students start practicing law.

V. Toward a Type 1 Theory of Law (A): Individuals

We have argued that Type 1 thought (a) is centrally important to legal reasoning, and (b) displays significant universality. The remainder of this article assumes these facts and traces their implications for lawyers and legal institutions. This Section reviews 19th Century claims that what we now call Type 1 reasoning should guide policymakers, updates those theories to accommodate the modern evidence for universality, and asks how Type 1 thought shapes the subjective experience of lawyering. Section VI builds on these foundations by analyzing how judicial institutions amplify universality’s comparatively weak signals to establish a rough approximation to formalism.


89 It is remarkable how quickly senior legal scholars drop the conceit that consideration is inevitable. See, e.g. Comments of A.M. Kales, American Law School Review 4(1) (West: 1916) at pp. 110-112 at p. 110 (Northwestern University law professor: “Take the doctrine of consideration. A man who is trained merely in the casebooks is very likely to think that he has something of a character like revelation, something fundamental, absolute, like the truths of mathematics. It is the sort of thing we want to get away from…”).

90 Small wonder that Scott Turow’s fictitious law school memoir chooses consideration to show the sadistic Prof. Perini’s abuse of the Socratic method, but also the narrator’s cleverness in escaping the trap. S. Turow, One L (Farrar, Straus & Giroux: 1977) at pp. 216-17.

91 A.M. Kales, supra note 89 at p. 111 (Practicing lawyers look to the law of their states, not what law schools think the law should be. They “never for one moment think of resting the rights of their clients upon Harvard Law School, or the rights of any other law school.”)

92 For concreteness, we will assume Prof. Child’s sixty percent universality estimate in what follows. However, this is probably conservative. First, Child studied visual art, which has no underlying objective truth for experts to converge on. We have already argued that the experience of writing and interpreting legal documents provides an
A. Victorian Theory: Shelley, Arnold and Holmes

The idea that Type 1 thinking should guide law is nearly as old as the concept of aesthetic/unconscious thought itself. The argument seems to have originated with Percy Shelley, who claimed in 1821 that “poets are the unacknowledged legislators of the World.” Logic, he argued, was not strong enough to find solutions to social issues – and particularly not the largest and most important ones. This implied that reason’s role in public life, though useful, was mainly to “follow[] in the footsteps of poets, and copy the sketches of their creations into the book of common life.”

Shelley’s ideas were only published in 1840, and even then were slow to diffuse. It took another three decades for poet and critic Matthew Arnold to state them definitively. For the most part, his *Culture and Anarchy* (1869) tracks Shelley’s argument, albeit with new names so that “reason” is relabeled “science,” and “imagination” becomes “culture.” However, Arnold also improved on Shelley by admitting that people could disagree about what was beautiful. Building on his earlier work in literary theory, he argued that critics who repeatedly compared new art against recognized “great masters” would eventually reach a consensus. This collective refinement was especially valuable in politics, where it would stop magnetic individuals from leading society astray the way that the French Revolution had.

B. Updating The Theory

Most of Shelley and Arnold’s logic is still viable today. Nevertheless, their argument had a significant defect: For aesthetic judgment to guide law, it must first point in some identifiable additional and more objective standard for lawyers. Second, Child compared Yale-trained experts to self-taught artists. The convergence would probably have been greater had the latter group been formally educated that way law students are.


94 Id. at 501.

95 Matthew Arnold, *Culture and Anarchy* (Oxford: 2006 [1869]) at p. 34 (Science is the “... passion, the sheer desire, to see things as they are. Culture by comparison finds “its origin in the love of perfection.” It moves by the force, not merely or primarily of the scientific passion for pure knowledge, but also of the moral and social passion for doing good.”)


97 Arnold, *Culture and Anarchy* note 95 at p. 51 (“[C]ulture, just because it resists this tendency of Jacobinism to impose on us a man with limitations and errors of his own along with the true ideas of which he is the organ, really does the world and Jacobinism itself a service.”)
direction. But where does this come from? For Shelley and Arnold, the answer was obvious: The criterion of beauty and the good society already existed in the mind of God.  

The question in the 21st Century is whether Child’s more limited and stochastic version of universality can fill this gap. As we argue below, legal institutions provide a natural mechanism for converting weak statistical preferences into quasi-determinate rules. The more serious objection is that Child’s evidence is limited to choices between similar images. This suggests that a comparable universality in law probably does not hold for large choices, for example between the US Constitution and Taiwan’s. That may explain why common law courts try to change as little doctrine as possible. This is partly due to economics: The amount of effort that advocates spend looking for new patterns is limited by litigation budgets on the one hand, and judges’ reluctance to learn elaborate new legal theories on the other. However the principle is also codified in the legal doctrine of stare decisis. Significantly, all of these factors are flexible, so that we should expect at least some evolution over time.

C. The Subjective Experience of Law

Neural network theory teaches that judges’ brains contain elaborate models of the world. Formally, these encode complex equations that assign weights to every possible variable. It follows that the advocate’s job is to supply whatever combinations of data garner the biggest response given the judge’s limited appetite for learning new patterns. If both advocates knew the judge’s underlying equation exactly, one side would always win. But we have seen that, in practice, the full formula is too complicated for humans to understand. This ensures that the ideal argument is never presented, so that the weaker side occasionally prevails.

In fact, the situation is worse than that. Given that advocates often know very little about their judges, the safest course will often be to assume universality and write for an average

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98 Arnold, Culture and Anarchy at p. 34 (“[N]o action or institution can be salutary and stable which are not based on the will of God.”)

99 Richard Posner, Law and Literature, supra note 6 at p. 255 (courts are loath to abandon “even patently erroneous interpretations.”)

100 Theoretical physics shows how the rules of the game can change. Down to the early 20th Century, physicists expected new theories to postulate as few changes as possible. In 1930, however, Wolfgang Pauli invented a new particle (the “neutrino”) as what he called a “desperate way out” of several deep problems in nuclear theory. The particle was duly discovered. Fifty years later, theorists routinely postulating large and even infinite numbers of particles. Abraham Pais, Inward Bound: Of Matter and Forces in the Physical World (Oxford 1986) at p. 315.

101 Most of us are reminded of this fact every December 25, when we learn anew how hard it is to anticipate even close relations’ taste in books and clothing. The average advocate has far fewer clues to individual judges’ tastes.

102 There is a direct parallel in publishing, where many authors and editors look for stories that they themselves would enjoy without asking how other humans might differ. S. Maurer, “From Bards to Search Engines: Finding
audience. Even then, however, advocates need to worry that their own views might be eccentric. This explains why practicing lawyers endlessly repeat their arguments to colleagues, trying out new variants to find the most attractive ones.103

*Grand Illusion.* One of legal realism’s biggest failings is that it says almost nothing about how lawyers actually practice. Watch oral argument in any courtroom and you will see advocates talk endlessly about “The Law” as if it existed outside themselves. This resembles nothing so much as the old claim that mathematics is never “created” but only “discovered.”104

Legal realists, of course, dismiss this as a smokescreen to hide judges’ arbitrariness from a credulous public. But in that case, why do lawyers do the same thing in private when there is no public to play to? The better answer is that universality only exists as a statistical quantity – and a fairly weak one at that. On the one hand, every lawyer shares a small piece of it, enough to convince her that her instincts are far better than the average layman’s. On the other hand, she also knows that her estimates are often wrong. The only way to be sure is to ask other lawyers. Law feels external because, in the deepest sense, it is.

**VI. Towards an Type 1 Theory of Law: Institutions**

Superficially, Child’s sixty percent universality is only ten percent better than a simple coin toss. Whether this matters depends on institutions. For example, sixty percent agreement among voters would be a landslide in national politics.105 The question for law is how complicated court systems amplify and occasionally garble the signal.

**A. What Does “Rule of Law” Require?**

We begin by recalling what democratic theory seeks to accomplish. Congress cannot anticipate every contingency, and only returns to particular topics every few decades. In the meantime, rule of law requires that judges fill the inevitable gaps in ways that do not depart too quickly from what Congress wants. An ideal common law system should therefore be something

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103 The same principle is used in Hollywood focus groups. *Id.* at 526.


between a dumb flywheel and a smartish autopilot that anticipates how Congress is likely to vote next time.\textsuperscript{106}

\textbf{B. Is Formalism Stable?}

We have argued that lawyers’ Type 1 intuitions provide a coherent foundation for quasi-formalist rulemaking. But judges have other options: If they want to, they can equally indulge cronyism or personal politics. Which behavior actually prevails depends on history: As economists say, many equilibria are possible. Still, we would like to confirm that formalist systems really are equilibria, \textit{i.e.} that once established they can persist indefinitely. Empirically, there is good anecdotal\textsuperscript{107} and statistical\textsuperscript{108} evidence that real judges respect precedent. But it would be better to have some deeper understanding of why this might be.

Consider, then, a toy model where judges seek working lawyers’ endorsements for psychic reasons like prestige or material ones like promotion.\textsuperscript{109} How should judges behave? A full analysis would start from the formal economics of repeat games.\textsuperscript{110} Assume however, that

\textsuperscript{106} Cf. Richard Posner, \textit{Law and Literature, supra} note 6 at 217 (arguing that discretion need not be “political,” but could equally “just be random?”)

\textsuperscript{107} Posner, \textit{How Judges Think supra} note 6 at p. 42-44, 49-50 (reporting that many judges decide cases according to formalist ideals).

\textsuperscript{108} For one of the rare recent efforts to probe judicial behavior at the trial court level, see, Daniel L. Chen, Jens Frankenreiter, Susan Yeh “Judicial Compliance in District Courts,” Toulouse School of Economics Working Paper (2016) (finding statistical evidence that finding that US federal lower court cases filed before and resolved after higher court decisions are 29-37\% more likely to rule in the same direction as the appellate court), available at https://www.tse-fr.eu/publications/judicial-compliance-district-courts.

\textsuperscript{109} Profs. Epstein, Landes and Posner argue that judicial utility is based on multiple factors that are plausibly consistent with the model presented here. These include internal satisfaction from “feeling that one has done a good job,” and the external satisfactions from “reputation, power, prestige, and celebrity” and possibility of promotion to a higher or more prestigious court or moving to a high paid private sector job. Lee Epstein, William M. Landes, Richard A. Posner, \textit{The Behavior of Federal Judges: A Theoretical and Empirical Study of Rational Choice} (Harvard: 2013) at p. 48.

\textsuperscript{110} Economists have modelled the situation in one of two ways. First, they consider trust games in which Alice helps Bob because she thinks he will return the favor. If Bob makes a reciprocal calculation, the assumptions become self-reinforcing even though neither is enforceable. The trust game dynamic is particularly visible when attorneys hire local co-counsel to avoid being “hometowned” in unfamiliar courthouses. Having a local counsel present turns what would otherwise be a dangerous one-time transaction into one more installment in the community’s repeat interactions.

The second set of theories assumes that each actor inherently possesses a fixed amount of trustworthiness which, however, cannot be measured directly. Parties then update their estimates each time a request is or is not honored.
lawyers earn their living by negotiating and occasionally litigating business transactions.\textsuperscript{111} Since risk makes deals less attractive, the best way to increase transactions (and lawyer income) is to make them less risky. Formalism does this by divorcing judges’ rulings from random cronyism and politics. Strangely, even cronies should dislike cronyism, since the prospect of neutral enforcement makes people more willing to sign contracts with them in the first place.\textsuperscript{112}

\textit{Cheating}. So far we have assumed that judges who depart from formalist logic are immediately detected. But since universality is stochastic, lawyers cannot be sure whether judges who disagree with them are corrupt or just mistaken. This forces them to wait for enough large or repeated departures to confirm dishonesty. But of course, judges also know this, which means that cheaters can postpone discovery by picking and choosing how often they cheat.\textsuperscript{113}

C. Amplification

Modern versions of universality need institutions to elevate weak signals into system-wide rules. But this is not enough: They should also avoid mistakes. Assume, following Child, that a single judge will arrive at the correct (universal) rule sixty percent of the time. Replacing her with a panel improves matters, but only slowly: A three judge panel will have the right answer sixty five percent of the time, a five judge panel seventy-three percent,\textsuperscript{114} and so on.

The question is still more complicated when we recall that courts influence each other. Economists typically analyze this kind of dynamic through “social influence” networks where each member starts with some idiosyncratic belief\textsuperscript{115} and then modifies it each time she learns

\textsuperscript{111} The argument formally assumes that the same lawyers simultaneously write contracts and appear before judges. While this is seldom true for individual lawyers, law firms routinely do both.

\textsuperscript{112} Of course, our model is only a toy. Many real lawyers make a living by representing non-business clients like tort victims. Furthermore, court systems are embedded in larger institutions. This suggests that judges could decide that it is better to write decisions that pander to the ideology of political parties that might one day promote them. Finally, one can imagine variant models where the cronies are lawyers rather than litigants. Since clients are risk averse, lawyers trying to keep clients happy will normally lose more from downside losses than they gain from upside wins. This suggests that judges are mostly likely to please counsel on average by adopting split-the-difference strategies that protect both sides against deep losses.

\textsuperscript{113} Casual observers often accuse judges of ignoring the law. But judges who study an issue for weeks necessarily change their neural networks in the process. This suggests that casual observers will always see things somewhat differently, so that judges are more sincere than they seem.

\textsuperscript{114} The estimate assumes that each judge decides independently, \textit{i.e.} that no judge consults any other judge before deciding. To the extent that discussion makes judges more receptive to new patterns, our sixty-five percent figure should be seen as a lower bound.

\textsuperscript{115} Matthew O. Jackson, \textit{Social and Economic Networks} (Princeton: 2008) at pp. 228-235. The belief is conventionally expressed as the probability that some particular event will happen, in our case that that a particular proposition of law becomes the majority rule.
what others think. For example, Alice might influence Bob, who influences Carl, who then
closes the circle by influencing Alice. But there could also be a second path in which Alice talks
to Carl, who gives his opinion directly back to Alice. This choice of paths necessarily injects a
measure of randomness into the calculation. Despite this, most of social influence models seem
to be well-behaved in the sense that each judge eventually converges on a stable long-run
opinion.  

Real life is bound to be messier. On the other hand, courts only write opinions when plaintiffs
decide that bringing suit will be cost-effective. This suggests that bad theories can linger for
years waiting for a plaintiff that is either sufficiently rich or sufficiently desperate to attempt a
revival. We should also expect strategic attempts to change the law through forum shopping
and/or government and advocacy group campaigns that keep bringing cases until the law
changes.  

VII Policy Implications

The age-old debate between the legal realists and formalists was never about policy. Indeed,
the realists seldom claimed that formalism and rule of law were not desirable – only that they
were illusory. By comparison, recognizing the centrality of Type 1 processes implies important
policy choices. On the one hand, policymakers must now decide which mode works best for
each and every legal issue. On the other hand, Type 1 processes are largely unconscious. What
can policymakers reasonably do to control bias?

A. Division of Labor: Choosing Between Type 1 and Type 2 Reasoning

Lawyers value Type 2 proofs for their transparency: Being articulable means that anyone can
check their logic. At the same time, Type 2 rules are inflexible and for that reason prone to

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116 Economists have also found solutions where members’ opinions can oscillate indefinitely. However, this only
happens where every path that leads from Alice back to herself are the same length. This is unlikely for real court
systems, where the order in which different circuits consider cases is usually random. Id. at pp. 230-233.

117 One of the most spectacular examples derives from antitrust law, where litigants have essentially stopped
writing contracts authorized by the Supreme Court’s General Electric decision even though the Court has twice
declined to overrule it. See, e.g., A.J. Weinschel, Antitrust-Intellectual Property Handbook (Glasser LegalWorks:
2000) (advising practitioners that it is not “prudent” to rely on the case).

118 Law students often wonder why the middle third of their antitrust textbooks consists entirely of cases decided
in the Forties. The reason is the Roosevelt Administration, which saw the “little Depression” of 1937 as evidence
that monopolies were strangling the economy. F.D.R. reacted by expanding the Justice Department’s Anti-Trust
Division from a few dozen lawyers to nearly three hundred. The statute’s reach expanded dramatically over the
next decade. David M. Kennedy, Freedom from Fear: The American People in Depression and War, 1929-1945
(Oxford 1999) at p. 359.
absurdities. When this happens we can either try to construct a new Type 2 system – as the law-and-economics movement advocates for antitrust – or ask whether a Type 1 solution might work better after all.

Sometimes the answer is clear. For example, psychologists have shown that Type 2 judgments based on formal statistical analyses work better than Type 1 judgments for any problem that can be reduced to an actuarial table. This suggests that the much-maligned Federal Sentencing Guidelines, for example, might be the best choice after all. On the other hand, such well-defined problems tend to be rare in law. For closer cases, at least, judges lean toward Type 1 solutions when problems are sufficiently regular to be predictable and common to allow prolonged practice.

When Type 1 methods are desirable, the best way to implement them will be to adopt open-ended inquiries on the pattern of the “reasonable man” standard in tort law or the various “balancing tests” beloved of constitutional lawyers. The good news, as we have argued, is that universality will often make these standards more determinate than they seem.

Textualism vs. Intentionality. This article has so far focused on the global choice between Type 1 and Type 2 rules. But Type 1 thought is itself subdivided between aesthetic judgments and pattern recognition. This neatly overlaps the traditional division between “intentionalists,” who focus on what the original drafters meant, and “textualists” who privilege how ordinary readers

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119 Richard Posner, Law and Literature at note 6, p. 241 (“[A] legal rule that is too specific may for that reason lack adaptability.”)

120 Antitrust law provides the closest analog to policy-based decision-making in modern law. Once the US Supreme Court gave up on per se rules in the late Thirties, every dispute revisited policy more or less from scratch. This must have been tempting since microeconomic theory is both conceptually clear and predictive. Despite this, the results have been widely criticized. See e.g., Holman Jenkins, “How Justice Went Wrong on AT&T: Comcast-Type Decrees May be a kludge, but they help to dissipate the political heat.” (Dec. 17, 2017) (antitrust only “pretends to be...an objective, clinical analysis of competitive conditions” but this only hides “a predisposition to meddle for bureaucratic or political reasons.”)

121 Kahneman, Thinking, Fast and Slow, supra at note 4 and pp. 232-44.

122 Id. at p. 251.

123 See, e.g., Panduit Corp. v. Dennison Mfg., Co., 810 F.2d 1561, 1566 (Fed. Cir. 1987) (criticizing “... the ‘reasonable man’ and other ghosts in the law.”)

understand documents on average.\textsuperscript{125} It is reasonable to think that readers’ facilities for pattern recognition can be encouraged by, for example, doctrines that stress historic intent over the reader’s own subjective reactions to text. But in that case, which choice should the legal system make? We have emphasized that universality depends partly on aesthetics and partly on pattern recognition, and these will often pull in opposite directions. To the extent that we value determinacy, we should choose whichever form of universality proves strongest.

B. Deciding Close Cases

Legal scholars have long known that establishing a coherent “middle ground” for interpreting precedent does not guarantee determinate rulemaking. Instead, there will always be “hard cases” where the better interpretation is unclear.\textsuperscript{126} Following our universality discussion, this can happen for two reasons:

\emph{Reason 1.} Even when most judges agree with one view on average, a few judges may see the choice as indeterminate. This group could well be different for every issue.

\emph{Reason 2.} Child presented his subjects with pairs in which Ivy League experts overwhelmingly preferred one image to the other. But suppose he had instead selected images that were “close” in quality? Logically, we would expect this perception to be universal as well.

The problem, of course, is that judges who encounter close cases cannot be sure whether they are experiencing “Reason 1” or “Reason 2.” From this standpoint, it is probably better for each judge to give her best estimate for the correct outcome even in close cases, so that universality emerges for Reason 1 cases in the usual way. This still leaves the question of what to do about Reason 2 cases. Here some individual human – preferably the appellate courts – will have to decide. At the same time, democratic theory suggests that Reason 1 cases should be decided through universality. This means that appellate judges should normally defer to the lower courts once a clear majority emerges.

C. Guarding Against Prejudice.

The problem with Type 1 judgments is that they are unconscious. This means that we can never be sure when prejudice enters in. Here universality is a partial corrective since purely personal


\textsuperscript{126} Dworkin, \textit{supra} note 12 at pp. 160-161 (“The distinction between hard and easy cases at law is perhaps just the distinction between cases that do and do not...” permit “a unique interpretation” on the basis of fit); Richard Posner, \textit{Law and Literature, supra} note 6 at p. 287. (“[M]aybe reason cannot decide the hard cases.”)
biases will often cancel each other on average. The larger question is what to do when the prejudices are themselves universal. For example, all humans prefer certain faces to others.\textsuperscript{127} This makes reasonable to worry that judges might sometimes rule for the prettiest litigant. Here the most obvious response is to identify and correct biases using explicitly Type 2 statistical reasoning. The deeper problem is that our logical selves may not understand the patterns that machines find in our Type 1 reasoning. The question will then become whether we trust our machines enough to take corrective action on faith.

\textbf{Conclusion}

This article has argued that legal reasoning cannot be analyzed in exclusively logical, Type 2 terms. Instead, Type 1 intuitions play a crucial role in deciding how law evolves. Acknowledging this reality will force policymakers to confront significant new issues, most obviously whether legal doctrine should encourage Type 1 or Type 2 processes in specific cases.

The surprise is universality, \textit{i.e.} the tendency of lawyers to reach similar judgments no matter what culture they were born into. This provides a natural explanation for the common perception that judges feel significantly constrained by a middle ground that is neither “formalist” nor “legalist.” This is particularly attractive since universality seems to originate from shared truths that most practicing lawyers will eventually come to. Apparently, law is more than identity politics after all.

The Victorian vision that aesthetic insights will lead society to the mind of God are gone forever. But we can still hope to build common law systems that are impartial, predictable, and stable against unconscious bias. Compared to the claims of its predecessors, this new formalism is modest, imperfect, and stochastic. No matter. It will do.