A PSYCHOLOGICAL MODEL OF JUDICIAL DECISION MAKING©

*Dan Simon**

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* Assistant Professor of Law, Haifa University, Israel; S.J.D., Harvard Law School, 1997; M.B.A., INSEAD, Fontainbleau, France, 1988; LL.B., Tel Aviv University, 1986. Email address: dsimon@psych.ucla.edu.

Many people assisted me in the writing of this Article. For their tireless support and discerning insight, I am indebted to my advisors Henry Steiner and Lewis Sargentich of Harvard Law School and Daniel Gilbert of the Department of Psychology, Harvard University. I have benefited much from the enlightening observations of Scott Altman, Yochai Benkler, Gary Blasi, Duncan Kennedy, Ziva Kunda, Doron Menashe, Martha Minow, Joshua Sherman, Anne Simon, Clyde Spillenger and Joseph Weiler. I thank the participants in the S.J.D. Colloquium at Harvard Law School, the Cognitive Science Seminar at the University of California, Los Angeles, and the law faculty workshops at the University of Haifa, the University of Southern California, and the University of San Diego. A significant part of this Article was written during stays at the Department of Psychology at the University of California, Los Angeles as a Visiting Scholar. I am grateful for the ongoing hospitality. Special thanks to Keith Holyoak for introducing me to the fascinating world of experimentation.

I. INTRODUCTION

This Article is an exploration of judicial reasoning as practiced at the appellate level in American law. It puts forth a descriptive and analytical account from a psychological perspective. It offers partial answers to questions such as: to what extent are judges constrained by legal materials? Why do judges tend to be so confident that their decisions are the singularly correct ones, even when the disputes are obviously complex and difficult? To what extent can we rely on the judicial account of the practice? What is the nature of the judicial hunch?

The curt answers are that judges portray constraint and confidently report singularly-correct decisions because that is the way they perceive the legal dispute at the completion of the decision making process. This perception is largely genuine, but it is not a particularly precise one. The inquiry into why and how this perception comes about will lead us through a broad ranging exploration of the decision making process. Part I explains why a psychological approach to judicial reasoning could benefit legal theory. It surveys related perspectives and theories extant in legal theory vis-à-vis the proposed psychological model. Part I also addresses some important methodological concerns. Part II examines the theoretical background to the psychology of decision making as it pertains to the tasks judges face. Part III contains the principal theoretical undertaking of this Article, offering a comprehensive model of decision making and suggesting how the model can be applied to the judicial context. Part IV offers a critical analysis of the implications of the psychological model to the judicial practice and to legal discourse in general.

A. Why Do We Need a Psychology of Judging?

The judicial process has remained in a daunting disarray ever since the onslaught of American Realism on formalist jurisprudence.[1] The voids created by the discrediting of mechanical jurisprudence continue to generate

1. The publication of Holmes' *The Common Law* in 1881 is generally considered a good place to start the count. *See* OLIVER WENDELL HOLMES, JR., THE COMMON LAW (Mark DeWolfe Howe ed., 1963) (1881) [hereinafter HOLMES, COMMON LAW]. *See also, e.g.*, RICHARD A. POSNER, THE PROBLEMS OF JURISPRUDENCE 15-21 (1990) [hereinafter POSNER, JURIS. PROBLEMS]; G. EDWARD WHITE, JUSTICE OLIVER WENDELL HOLMES: LAW AND THE INNER SELF ch. 5 (1993).

unrelenting discussion within legal scholarship.[2] The responses to the crisis have yielded an abundance of prescriptions—grounded mostly in epistemological and hermeneutical theory—as to how judges ought to decide cases.[3] Virtually absent from this scholarly landscape are descriptive accounts of the practice.

The dearth of descriptive accounts of judging is particularly notable since judges routinely express in extra-judicial writings a difficulty in fathoming their practice. Holmes stated that at the heart of the judicial process "often lies an inarticulate and unconscious judgment."[4] Cardozo found it "comic" that while jurists fail to agree on defining the premises of their activity, they confidently manufacture decisions "out of what, they cannot tell you, and by a formula they cannot state."[5] In a similar vein, Jerome Frank described adjudication as involving features that "words cannot ensnare;" a process guided by a "wordless knowledge."[6] Judge Frank Coffin refers to judging as a task whose guiding process is yet to be revealed.[7] Judge Robert Leflar suggested that judges fail to comprehend the

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2. Joseph W. Singer, *Legal Realism Now*, 76 CAL. L. REV. 465, 504 (1988). On the mechanical view of judging in the formalist era, see Roscoe Pound, *The Call for a Realist Jurisprudence*, 44 HARV. L. REV. 697 (1931) [hereinafter Pound, *Realist Jurisprudence*].

3. See, for example, Edward Rubin's assessment that legal scholarship's penchant for the prescriptive voice is second only to that of moral philosophy. Edward L. Rubin, *The Practice and Discourse of Legal Scholarship*, 86 MICH. L. REV. 1835, 1847-48 (1988); *see* Frederick Schauer, *Jurisprudence and Political Theory: The Determinants of Legal Doubt*, 89 MICH. L. REV. 1295, 1296 (1991) (reviewing KARL N. LLEWELLYN, THE CASE LAW SYSTEM IN AMERICA (Paul Gewirtz ed. & Michael Ansaldi trans., Univ. of Chicago Press 1989) (1928)); *see also* Samuel J. M. Donnelly, *Towards a Personalist Jurisprudence: Basic Insights and Concepts*, 28 LOY. L.A. L. REV. 547, 553 (1995).

4. Oliver Wendell Holmes, Jr., *The Path of the Law*, 10 HARV. L. REV. 457 (1897) [hereinafter Holmes, *The Path of the Law*].

5. BENJAMIN N. CARDOZO, *Jurisprudence*, *in* SELECTED WRITINGS OF BENJAMIN NATHAN CARDOZO 7, 43-44 (Margaret E. Hall ed., 1947) [hereinafter CARDOZO, *Jurisprudence*]. In the opening passage to *The Nature of the Judicial Process*, Cardozo states: "[A]ny judge, one might suppose, would find it easy to describe the process which he had followed a thousand times and more. Nothing could be farther from the truth." BENJAMIN N. CARDOZO, THE NATURE OF THE JUDICIAL PROCESS 9 (1921) [hereinafter CARDOZO, JUDICIAL PROCESS].

6. JEROME FRANK, COURTS ON TRIAL: MYTH AND REALITY IN AMERICAN JUSTICE 173-74 (1949) [hereinafter FRANK, COURTS ON TRIAL]. From 1941 onwards, Judge Jerome Frank sat on the Second Circuit Court of Appeals.

7. FRANK M. COFFIN, THE WAYS OF A JUDGE 246 (1980). Judge Coffin is a circuit judge in the United States Court of Appeals for the First Circuit.

virtues of their activity.[8] Judge Walter Schaefer explained that "we lack the ability to describe what happens" in the decision making process.[9]

With no systematic account at their disposal, judges have tended to relate to their activity by means of loose, metaphorical terms. They typically portray the judicial decision as constituting a "strange compound,"[10] an "incalculable mixture,"[11] a "brew,"[12] and a formula requiring "the wisest and most just mixture."[13] Judging is occasionally described as artistic creation,[14] and as various forms of craftsmanship;[15] including cooking,[16] weaving[17] and carpentering.[18] Other judges summarize their account of the decision making process by emphasizing the role of the hunch, or intuition. In this Article, I suggest that reliance on the hunch as an aid in decision making is probably more germane than most commentators believe,[19] however, in its unexplored form it is too nebulous to illuminate the process in a meaningful way. Although the failure to articulate the workings of their mental processes should come as no embarrassment to the judicial profession,[20] most judges seem uncomfortable with it. This discomfort has

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8. *See* Robert A. Leflar, *Some Observations Concerning Judicial Opinions*, 61 COLUM. L. REV. 810, 814 (1961). Judge Leflar was an associate justice for the Supreme Court of Arkansas and a professor of law at the University of Arkansas and New York University.

9. *See* Walter V. Schaefer, *Precedent and Policy*, 34 U. CHI. L. REV. 3, 22 (1966). Judge Schaefer was a justice on the Supreme Court of Illinois. Similarly, Llewellyn surmised that judges do a better job than they are able to account for. KARL N. LLEWELLYN, THE CASE LAW SYSTEM IN AMERICA 87 (Paul Gewirtz ed. & Michael Ansaldi trans., Univ. of Chicago Press 1989) (1928) [hereinafter LLEWELLYN, CASE LAW]; *see also* Richard Danzig, *Justice Frankfurter's Opinions in the Flag Salute Cases: Blending Logic and Psychologic in Constitutional Decisionmaking*, 36 STAN. L. REV. 675 (1984).

10. COFFIN, *supra* note 7, at 245.

11. Jerome Frank, *Are Judges Human?*, 80 U. PA. L. REV. 17, 47 (1931).

12. CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 10.

13. COFFIN, *supra* note 7, at 245.

14. *E.g.*, BENJAMIN N. CARDOZO, *The Paradoxes of the Legal Science*, *in* SELECTED WRITINGS, *supra* note 5, at 251 [hereinafter CARDOZO, *Paradoxes*].

15. *See* Richard A. Posner, *The Jurisprudence of Skepticism*, 86 MICH. L. REV. 827, 856 (1988) [hereinafter Posner, *Skepticism*]; *see also* CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 162.

16. *See* Learned Hand, 35 HARV. L. REV. 479 (1921) (reviewing CARDOZO, JUDICIAL PROCESS).

17. *See* Roger J. Traynor, *Reasoning in a Circle of Law*, 56 VA. L. REV. 739, 743 (1970). Roger Traynor was a retired chief justice of the California Supreme Court in 1970.

18. Robert Satter, *Tools of the Trade*, 78 A.B.A. J. 104 (1992). Robert Satter was a Connecticut Superior Court judge.

19. *See infra* notes 350-59 and accompanying text (hunch discussion).

20. *See infra* note 352 and accompanying text (difficult to verbalize cognitive

been accompanied by a persistent call for the development of a psychological account of judging. Cardozo described *The Nature of the Judicial Process* as "introspective searchings of the spirit," intended merely to fill a gap until a "richer scholarship" appears.[21] Frank explained that to understand the making of judicial judgments, "we must observe how ordinary men dealing with ordinary affairs arrive at their judgments."[22] Similarly, Judge Joseph Hutcheson advocated the study and reflection of "those processes of the mind by which such decisions are reached."[23] According to Judge Schaefer, jurisprudence lacks "techniques and tools which are sensitive enough to explore the mind of man and report accurately its conscious and subconscious operations."[24] Calls for the development of a psychology of judging have been sounded also by Roscoe Pound, Felix Cohen, and Karl Llewellyn.[25] It is generally accepted that no such a psychology has yet emerged.[26]

In the meanwhile, judges use informal terms to describe their thought processes. Thus they recount "weighing arguments," "striking balances," performing "reasoned elaboration," and the like. But these descriptions are mostly metaphorical themselves and fail to add much to our understanding of the process. The question remains what does it mean to weigh arguments and to strike balances? How is deliberation performed? What, if any,

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processes).

21. CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 13.

22. JEROME FRANK, LAW AND THE MODERN MIND 108 (1930) [hereinafter FRANK, MODERN MIND].

23. Joseph C. Hutcheson, Jr., *The Judgment Intuitive: The Function of the "Hunch" in Judicial Decision*, 14 CORNELL L. REV. 274, 288 (1929). Joseph Hutcheson was a United States District Judge when he wrote *The Judgment Intuitive*; he later served on the Court of Appeals for the Fifth Circuit.

24. Schaefer, *supra* note 9, at 23 (footnotes omitted).

25. *See* Pound, *Realist Jurisprudence, supra* note 2. Cohen suggested the understanding of law "will be greatly enriched when we learn more about how judges think." Felix Cohen, *Transcendental Nonsense and the Functional Approach*, 35 COLUM. L. REV. 809 (1935). Llewellyn reportedly described his writings as an "effort to work into the social psychology of the judicial process in a more systematic way than is done in the essays by Cardozo and others which we already have." LLEWELLYN, CASE LAW, *supra* note 9, at xiii.

26. KARL N. LLEWELLYN, THE COMMON LAW TRADITION: DECIDING APPEALS 15 (1960) [hereinafter LLEWELLYN, DECIDING APPEALS]. What was true in Llewellyn's day remains true today. *See, e.g.*, Martha Minow, *Judging Inside Out*, 65 U. COLO. L. REV. 795, 797 (1990); Richard A. Posner, *The Decline of Law as an Autonomous Discipline: 1962-1987*, 100 HARV. L. REV. 761 (1987); Lawrence B. Solum, *On the Indeterminacy Crisis: Critiquing Critical Dogma*, 54 U. CHI. L. REV. 462, 488 (1987).

limitations impede on the performance of these mental tasks? What are the outcomes, both intended and unintended, of these mental processes?

Some Lingering Conundrums

The dire need for a psychology of judging is accentuated by the fundamental disagreement within legal theory with regards to the character of the judicial function and, by implication, to the nature of law in general. The pre-realist characterization of the judicial function as one of merely finding and pronouncing extant law was assailed by Holmes, Cardozo and their successors. This Blackstonian characterization of the oracle-judge was criticized, foremost, for its claim to syllogistic logic. Holmes stated that "the life of the law has not been logic: it has been experience,"[27] and denounced any reliance on deductive logic as a fallacy.[28] Holmes did not confine this view to extra-judicial writing; in his famous *Lochner* dissent he stated that "[g]eneral propositions do not decide concrete cases."[29] The putative syllogistic feature of judicial reasoning was rejected also by Cardozo. Cardozo characterized the practice as predominantly plastic and malleable; logic, for him, was only one of several ingredients blended into the judicial decision.[30] The reliance on logical reasoning has been criticized also by Judges Leflar and Schaefer,[31] John Dewey,[32] Felix Cohen,[33] and Richard Wasserstrom.[34]

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27. HOLMES, COMMON LAW, *supra* note 1, at 5.

28. OLIVER WENDELL HOLMES, COLLECTED LEGAL PAPERS 180 (1920).

29. Lochner v. New York, 198 U.S. 45, 76 (1905) (Holmes, J., dissenting).

30. CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 161-62.

31. *See* Leflar, *supra* note 8, at 816; Schaefer, *supra* note 9, at 4. Judge Leflar also challenges the impression created in opinions that conclusions which cannot be tortured into conceptual molds prescribed by logic are necessarily wrong. *See* Leflar, *supra* note 8, at 816.

32. Dewey stated that the syllogism "purports to be a logic of rigid demonstration, not of search and discovery." John Dewey, *Logical Method and Law*, 10 CORNELL L.Q. 17, 21 (1924). The trouble with the syllogism was that while it "sets forth the *results* of thinking, it has nothing to do with the *operation* of thinking." *Id.* at 22. He spoke also of the "absurd because impossible proposition that every decision should flow with formal logical necessity from antecedently known premises." *Id.*

33. *See* Cohen, *supra* note 25.

34. *See* RICHARD A. WASSERSTROM, THE JUDICIAL DECISION: TOWARD A THEORY OF LEGAL JUSTIFICATION 16-17 (1961).

> If one were to look no further than the opinions that judges write to accompany their decisions, it would not occur to one that the decision process could be anything but deductive. For it is one of the curious features of Anglo-American case law that regardless of the way in which a given decision is actually reached, the judge

Another characteristic of mechanical jurisprudence to come under attack was the sense of certainty conveyed in judicial opinions. Again, it was a cryptic statement by Holmes that set the stage: "certainty is an illusion, and repose is not the destiny of man."[35] Frank protested that judicial certitude was mostly a means of concealing the uncertainties inherent in the judging process. In his piquant image, judicial reasoning resembled "the necks of the flamingos in Alice in Wonderland which failed to remain sufficiently rigid to be used effectively as mallets by the croquet-players."[36] Judge Schaefer pointed out that decisions are written in terms of ultimate certainty even when they are based on a slight degree of conviction.[37] Karl Llewellyn was particularly impatient with what he called the "dressing up" of judicial opinions in the "garb of certainty;" for any but the easiest cases, he stated, legal certainty never has existed and never will.[38] Llewellyn added that striving towards judicial certainty was nothing but "a waste of time."[39] A related aspect of formal jurisprudence to undergo criticism was the singular correctness of judicial decisions. Judge Leflar criticized the judicial tendency to portray decisions as if they "inevitably require the exact result that is announced."[40] A similar criticism was made by Llewellyn.[41]

These and other critiques of the classical account of judging reached full form in Cardozo's *The Nature of the Judicial Process*.[42] Particularly instructive is the description of his personal transformation, from seeking "the solid land of fixed and settled rules" to reconciling with law's inherent uncertainty.[43] In the paragraph that contains the title of the book he

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apparently feels it necessary to make it appear that the decision was dictated by prior rules applied in accordance with canons of formal logic.

Id. (footnote omitted). Wasserstrom continues to refute the role of logic in the adjudicative process. *Id.* at 17-19.

35. Holmes, *The Path of the Law*, *supra* note 4, at 466.

36. United States v. Rubenstein, 151 F.2d 915, 923 (2d Cir. 1945) (Frank, J., dissenting). This comment by Judge Frank is exceptional because it was made in a judicial opinion, albeit a dissent.

37. Schaefer, *supra* note 9, at 10.

38. LLEWELLYN, CASE LAW, *supra* note 9, at 73.

39. *Id.* Elsewhere Llewellyn echoed Holmes' view of certainty as merely "an illusion." *See* Karl Llewellyn, *Some Realism About Realism*, 44 HARV. L. REV. 1222 (1931) [hereinafter Llewellyn, *Some Realism About Realism*].

40. Leflar, *supra* note 8, at 816.

41. Llewellyn characterized the judicial opinion as typically "presented as simply inevitable, whatever doubts the panel may have had in arriving at it." LLEWELLYN, CASE LAW, *supra* note 9, at 8.

42. CARDOZO, JUDICAL PROCESS, *supra* note 5.

43. *Id.* at 166.

concludes that "in its highest reaches," the nature of the judicial process "is not discovery, but creation."[44] Elsewhere he states: "There is nothing that can relieve us of 'the pain of choosing at every step.' "[45] Cardozo's coming of age has since been embodied in a large number of off-bench writings by judges.[46] The metaphor of *judge-as-creator* seems to have become common wisdom; several observers note that "nobody believes any longer" in the formalist metaphor of the *judge-as-finder*.[47] As one judge put it, this conception of the judicial role amounts to "intellectual nonsense."[48]

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44. The following paragraph by Cardozo contains the title of the book:

> I was much troubled in spirit, in my first years upon the bench, to find how trackless was the ocean on which I had embarked. I sought for certainty. I was oppressed and disheartened when I found that the quest for it was futile. I was trying to reach land, the solid land of fixed and settled rules . . . . As the years have gone by, and as I have reflected more and more upon the nature of the judicial process, I have become reconciled to the uncertainty, because I have grown to see it as inevitable. I have grown to see that the process in its highest reaches is not discovery, but creation; and that the doubts and misgivings, the hope and fears, are part of the travail of mind, the pangs of death and the pangs of birth, in which principles that have served their day expire, and new principles are born.

Id. at 166-67; *see also* Schaefer, *supra* note 9, at 4.

45. BENJAMIN N. CARDOZO, THE GROWTH OF THE LAW 67 (1924) [hereinafter CARDOZO, GROWTH OF THE LAW]. Cardozo offers this strong criticism of formal jurisprudence:

> Judges march at times to pitiless conclusions under the prod of a remorseless logic which is supposed to leave them no alternative. They deplore the sacrificial rite. They perform it, none the less, with averted gaze, convinced as they plunge the knife that they obey the bidding of their office. The victim is offered up to the gods of jurisprudence on the altar of regularity.

Id. at 66. For a literary critique of this passage, see POSNER, JURIS. PROBLEMS, *supra* note 1, at 22.

46. *See, e.g.*, Shirley S. Abrahamson, *Judging in the Quiet of the Storm*, 24 ST. MARY'S L.J. 965 (1993); Ruggero J. Aldisert, *The Nature of the Judicial Process: Revisited*, 49 U. CIN. L. REV. 1 (1980); Leflar, *supra* note 8, at 815; Schaefer, *supra* note 9, at 3; *see also, e.g.*, Dan Simon, The Psychology of a Reputation: On Cardozo, the Judicial Practice, and the Function of Mental Compartmentalization (forthcoming 1999) (paper to be presented at the 1999 Law & Society Association Annual Conference).

47. LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 11. Llewellyn, states that formal and accurate deduction rarely decide problematic cases and adds: "[T]oday all of this is so familiar and obvious as to bore, but there were reasons why, four or five decades ago, it shocked our legal world." *Id.*; *see also* WASSERSTROM, *supra* note 34, at 3; Danzig, *supra* note 9, at 675; Schaefer, *supra* note 9, at 4.

48. Judith S. Kaye, *The Human Dimension in Appellate Judging: A Brief Reflection on a Timeless Concern*, 73 CORNELL L. REV. 1004, 1006 (1988). Judith Kaye was an associate judge for the New York State Court of Appeals when writing this article.

Despite all this, the metaphor of the judge as discoverer is very much alive and doing remarkably well in American law. Although few judges would defend this view in extra-judicial writings, the majority of judicial opinions continue to operate as if discovering extant law is the primary modus operandi of judging.[49] Professors Rubin and Feeley note that even though legal formalism has been officially discredited, even scorned, its ghosts continue to whisper to us that any other type of judging is simply unlawful.[50] Fredrick Schauer adds that legal reasoning is still couched mostly in the language of discovery.[51] Indeed, much of what was supposedly undone by the realist critique seems to persist until this day. The judicial opinion continues to be based largely on syllogistic forms of argumentation;[52] judges maintain remarkably high levels of confidence in their decisions;[53] and opinions portray the chosen decision as singularly

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49. Singer, *supra* note 2, at 532-33. Joseph Singer explains that liberal theories of adjudication "substantially rely on 'finding' metaphors; they hope to 'discover' the right answer, to 'elaborate' existing community values, to 'uncover' the principles embedded in precedent and social practice, and 'balance' interests." *Id.*

50. *See* Edward Rubin & Malcolm Feeley, *Creating Legal Doctrine*, 69 S. CAL. L. REV. 1989 (1996).

51. *See* Frederick Schauer, *Giving Reasons*, 47 STAN. L. REV. 633, 642 n.23 (1995).

52. Posner, *Skepticism, supra* note 15, at 865. As Posner explains:

> Most judicial opinions even in the toughest cases depict the process of reasoning as a logical deduction (syllogistic or enthymematic) from previous decisions or from statutes viewed as transparent sources of rules, and, consistent with the logical form, imply that even the very toughest case has a right and a wrong answer and only a fool would doubt that the author of the opinion had hit on the right one.

Id. Posner adds that this is also the style of much law review commentary. *Id.* at 858. Gerald Wetlaufer describes the judicial opinion as one where the judge's arguments are backed by "as many authorities as circumstances require. Whenever possible, they take the form of deductive, syllogistic proofs. Thus, the judge announces the one true state of the facts and the one true meaning of the relevant texts." Gerald B. Wetlaufer, *Rhetoric and Its Denial in Legal Discourse*, 76 VA. L. REV. 1545, 1562 (1990).

53. Posner, *Skepticism, supra* note 15, at 873. Posner states that judges "decide cases with greater confidence than the nature of judicial decisionmaking permits, and they write with more confidence than they feel." *Id.* He describes the style as based on a "vocabulary of apodictic certainty." POSNER, JURIS. PROBLEMS, *supra* note 1, at 30. Elsewhere he speaks about "the exaggerated confidence" of what he calls the *pure* style of judging. Richard A. Posner, *Judges' Writing Styles*, 62 U. CHI. L. REV. 1421, 1430 (1995) [hereinafter Posner, *Judges' Writing Styles*]. Similarly, Scott Altman explains: "[M]ost judicial opinions are written as if the outcome were obvious, never permitting doubt or moral difficulty to appear." Scott Altman, *Beyond Candor*, 89 MICH. L. REV. 296, 306 n.29 (1990).

correct.[54] Opinions are overstated, rigid, seemingly inevitable.[55] The rhetorical style is that of closure.[56] The judge is depicted as having little choice in the matter: the decisions are strongly constrained by the legal materials.

It seems that this neo-formalist form of jurisprudence—typified by a self-reported experience of constraint, high confidence and singular correctness, all couched in the rhetoric of closure—is the predominant, albeit unofficial, mode of judicial reasoning in current American legal culture.[57] It seems also that the social expectation from the judiciary is that

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54. Altman, *supra* note 53, at 306 n.29. Altman adds that "each of the applicable factors miraculously counsels ruling in favor of the winning party, [and] the judge need not select among competing rules, because the same party wins under all possible rules." *Id.* William Eskridge and Philip Frickey state: "[T]he Court unrealistically asserts that all of the interpretive factors support the Court's interpretation or are at least neutral; very often the Court simply ignores those considerations that point in a different direction." William N. Eskridge, Jr. & Philip P. Frickey, *Statutory Interpretation as Practical Reasoning*, 42 STAN. L. REV. 321, 365 (1990).

55. The public reports that judicial opinions are overawing, impressive, and intimidating. *See* Posner, *Judges' Writing Styles*, *supra* note 53, at 1430. Eskridge and Frickey criticize opinions for being wooden, overstated, and one-sided. Eskridge & Frickey, *supra* note 54, at 364-365.

See DUNCAN KENNEDY, A CRITIQUE OF ADJUDICATION 28-29 (1997) [hereinafter KENNEDY, CRITIQUE OF ADJUDICATION]. Paul Gewirtz, *On "I Know It When I See It,"* 105 YALE L.J. 1023, 1042 (1996). Paul Gewirtz states "[t]he typical . . . opinion is marked by a rhetoric of certainty, inevitability, and claimed objectivity, a rhetoric that denies the complexity of the problem and drives to its conclusion with a tone of self-assurance." *Id.*; *see also id.* at 1027-28. Similarly, Robert Ferguson explains "[t]he monologic voice, the interrogative mode, and the declarative tone build together in what might be called a rhetoric of inevitability." Robert A. Ferguson, *The Judicial Opinion as Literary Genre*, 2 YALE J.L. & HUMAN. 201, 213 (1990).

56. Wetlaufer explains:

> I will identify the rhetoric of law in terms of a linked set of rhetorical commitments. These include commitments to a certain kind of toughmindedness and rigor, to relevance and orderliness in discourse, to objectivity, to clarity and logic, to binary judgment, and to the closure of controversies. They also include commitments to hierarchy and authority, to the impersonal voice, and to the one right (or best) answer to questions and the one true (or best) meaning of texts.

Wetlaufer, *supra* note 52, at 1561-62. Posner describes judicial rhetoric as "overblown." Posner, *Skepticism*, *supra* note 15, at 858.

57. There are, of course, exceptions. Some opinions by Judge Learned Hand candidly exposed the complexity of the case along with the conflict of the judge. The *T. J. Hooper* case is such an example. *See* T.J. Hooper v. Northern Barge Corp., 60 F.2d 737 (2d Cir. 1932). For a favorable view of Hand's openness, see Walker Gibson, *Literary Minds and Judicial Style*, 36 N.Y.U. L. REV. 915 (1961).

opinions adhere to this style.[58] The persistence of this judicial posture is quite surprising, particularly since we are all supposedly legal realists.[59] Now that the dragons of conceptualism, objectivism, and foundationalism are reportedly slain,[60] one might well wonder what prevents the legal community from reckoning with the creative nature of the judicial practice.[61] This charged conundrum lies about as a thorny fixture in the center of our jurisprudential landscape.

B. Three Familiar Explanations

1. Role-Constraint Explanation

Some judges have attempted to resolve the awkward discrepancy between the *creator* and *finder* conceptions of the judicial role by suggesting that they are constrained, but not by the legal materials. They explain that

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58. The rare occasions in which judges admit to a less-than-certain decision seem to have a troubling effect on the legal community. For example, in *Denver Area Educational Telecommunications Consortium, Inc. v. FCC*, 518 U.S. 727 (1996), Justice Breyer concluded that none of the available paradigmatic standards of free speech—broadcast, common carrier, or bookstore—seemed to fit the case of a local cable television system. *Id.* at 741-42. Heeding to the changes taking place in technological world relating to communications, Breyer expressed his belief that it is "unwise and unnecessary definitively to pick one analogy or one specific set of words." *Id.* at 742. The plurality proceeded to decide the case on narrower grounds. *Id.* at 743. What makes this decision interesting is that it has evoked the looming question of judicial certainty. Breyer's omission to render an unequivocal and certain conclusion was congratulated by three Justices (Souter, Stevens, and O'Conner). *See id.* at 768, 777, 779-80. Justices Kennedy and Ginsburg, in contrast, criticized it for being standardless, for losing sight with the doctrine—in short, for being "adrift." *Id.* at 780-81. All this could have been prevented, these Justices admonish, had the court had "the discipline" to adhere more closely to existing doctrinal propositions. *Id.* at 780. Expressions of judicial uncertainty are sufficiently rare so that a rather mild statement as this one by Justice Breyer sparked an article in the *New York Times*. *See* Linda Greenhouse, *When a Justice Suffers From Indecision*, N.Y. TIMES, July 14, 1996, § 4, at 5. The article included a comment by Floyd Abrams, a leading First Amendment practitioner, who found the decision "disturbing." *Id.* Abrams explained: "[W]hen the Court deliberately avoids the use of legal doctrine, it means you don't know what the law is." *Id.*

59. *See* Singer, *supra* note 2, at 503. Posner suggests that "today we are all skeptics." POSNER, JURIS. PROBLEMS, *supra* note 1, at 453.

60. *See* Singer, *supra* note 2, at 497, 503.

61. To be sure, this is not to say that the realist revolution was inconsequential. I am proposing, however, that its actual impact on the style of judicial reasoning is considerably less influential than is generally believed.

the constraints are grounded in the broader context of their role.[62] Examples of role constraints include institutional limitations,[63] the techniques and conventions of the craft,[64] the dynamics of judicial collegiality,[65] the duty to produce written opinions,[66] the motivation to earn respect of relevant audiences and institutions,[67] and the aversion to being reversed on appeal.[68]

It is very doubtful whether these features of the judicial role satisfy the question of constraint. These role constraints are well suited to ward off fears of the legal process going astray or of the political prize being hijacked by a usurping judiciary. But these fears miss the crux of the realist revolution; they reflect only an exaggeration of this historical event.[69] The realist critique is most powerful in its moderate version: legal materials are perfectly capable of limiting the range of all possible conclusions to a narrow set of alternatives, but are hopelessly incapable of identifying which

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62. This type of constraint resembles the list of "steadying factors" put forth by Llewellyn in his later writings. *See* LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 19-51.

63. *See, e.g.*, Patricia M. Wald, *Some Thoughts on Judging as Gleamed from One Hundred Years of the Harvard Law Review and Other Great Books*, 100 HARV. L. REV. 887, 903 (1987) [hereinafter Wald, *Some Thoughts on Judging*]; *see also, e.g.*, COFFIN, *supra* note 7, at 145-46.

64. *See, e.g.*, COFFIN, *supra* note 7, at 145-46.

65. *See, e.g.*, Abrahamson, *supra* note 46, at 992; Irving R. Kaufman, *The Anatomy of Decision Making*, 53 FORDHAM L. REV. 1, 16-17 (1984); Patricia M. Wald, *The Rhetoric of Results and the Results of Rhetoric: Judicial Writings*, 62 U. CHI. L. REV. 1371, 1419 (1995) [hereinafter Wald, *Rhetoric of Results*]; Patricia M. Wald, *Thoughts on Decisionmaking*, 87 W. VA. L. REV. 1, 10-11 (1984) [hereinafter Wald, *Decisionmaking*].

66. *See, e.g.*, Abrahamson, *supra* note 46, at 992; Wald, *Some Thoughts on Judging*, *supra* note 63, at 903.

67. *See, e.g.*, Abrahamson, *supra* note 46, at 991-92; Wald, *Decisionmaking*, *supra* note 65, at 10-12.

68. *See, e.g.*, Abrahamson, *supra* note 63, at 992; Kaufman, *supra* note 65, at 16; Wald, *Decisionmaking*, *supra* note 65, at 10-12.

69. WASSERSTROM, *supra* note 34, at 24. Richard Wasserstrom called this the *irrationalist fallacy*, and stated that "many legal philosophers are surely mistaken if they infer the inherent arbitrariness of the judicial decision process from the limited utility of the formal, deductive logic." *Id.* Quoting French jurist M. Pierre Tourtoulon, Felix Cohen suggested "[t]here is no need to throw to the dogs everything that is not fit for the altars of the gods." Felix Cohen, *The Ethical Basis of Legal Criticism*, 41 YALE L.J. 201, 206 (1931). His father, Morris Cohen stated: "[I]n thus showing that judges do and must make law, I do not, of course, wish to maintain that they are in no wise bound and can make any law they please." Morris R. Cohen, *Legal Theories and Social Science*, INT'L J. ETHICS 476, 477 (1915); *see also* LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 4; *infra* note 486 (discussing Cardozo's defense of the concept of the hunch). On the tendency of legal scholars to oscillate between extremes, see H. L. A. HART, THE CONCEPT OF LAW 127 (1961).

one of the remaining alternatives is the best decision.[70] The problem that plagues most legal disputes at the appellate level is not that law is *in*determinate, but rather that it is *under*determinate. To say that judges are constrained by the judicial role, it is not enough to show that the constraints can curb law's excesses; rather, it must be shown that they can perform the more subtle task of closing the small gaps left open by its underdeterminacy.[71] It is difficult to imagine how such general, content-neutral institutional prescriptions could affect particular arguments and determine which of two similarly-acceptable solutions is the preferable one.[72] The question of judicial constraint, in its moderate, more pertinent version remains unanswered and thus the conundrum of the judicial function lingers.[73]

2. Prescriptive and Functional Explanations

An alternative response to the judicial conundrum is that the coherence that characterizes judicial opinions is not a predicament, but a desideratum. A number of influential theories of jurisprudence use coherence as a

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70. *See* Singer, *supra* note 2, at 467-75; *see also* Gregory Keating, *Fidelity and Pre-Existing Law and the Legitimacy of Legal Decision*, 69 NOTRE DAME L. REV. 1, 51 (1993). For a similar view on the limited guidance offered by criteria of rationality in the context of rational choice theories, see JON ELSTER, SOUR GRAPES: STUDIES IN THE SUBVERSION OF RATIONALITY 2 (1983).

71. POSNER, JURIS. PROBLEMS, *supra* note 1, at 131. Posner claims that legal materials that do not lean so strongly in one direction so as to make one decision unreasonable, "merely narrow the range of permissible decision, leaving open an area within which the judge must perforce attempt to decide the case in accordance with sound policy." *Id.* The taxonomy of indeterminacy and underdeterminacy is borrowed from Lawrence B. Solum, *supra* note 26, at 473.

72. Similarly unhelpful in this regard are the constraints claimed to be rooted in the judge's personal integrity. *See, e.g.*, Abrahamson, *supra* note 46, at 992; Wald, *Rhetoric of Results*, *supra* note 65, at 1419. Posner is right in claiming that judges are constrained by "their genes and upbringing, their temperament, fears, and ambitions." *See* POSNER, JURIS. PROBLEMS, *supra* note 1, at 193. This Article suggests, however, that there is something more systematic going on than these individual factors.

73. CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 113. As Cardozo states, after all constraints are taken into consideration, the judge is still left with the task of legislating; "[N]o doubt the limits of the judge are narrower. He legislates only between gaps." *Id.* at 113, 115. Similarly, Posner explains that the judicial decision may be stabilized by means of such constructs as judicial self-restraint, strict construction, rigid adherence to precedent, favoring the underdog, or insistence on definite "bright-line" rules, but none of these devices will suffice to close the open area all the way. POSNER, JURIS. PROBLEMS, *supra* note 1, at 134-35. "They impart to judicial decision making not objectivity but pseudo-objectivity." *Id.*

constitutive principle for determining the truth of legal propositions. Ronald Dworkin's theory of *law as integrity* is probably the best known example. In Dworkin's view, law's integrity is a political ideal of great moral significance.[74] Coherence is a central property of law as integrity, and it serves to determine the truth of legal propositions.[75] More than just ensuring that like cases are treated alike and that law's continuity is maintained, coherence guides judges towards the community's substantive morality rather than their own. Law as integrity heeds this community morality by endorsing the interpretation that best justifies the extant legal practice and institutions as a coherent scheme of principle.[76] In this view, coherent opinions are good opinions, and closure is the appropriate way of judging.

Another familiar response to the issue at hand turns on the perceived instrumental value, that is, on the *functional* purposes believed to be served by the style of closure.[77] A common belief in legal discourse is that closure enhances the acceptability of the decisions whereas openness undermines it.[78] Deductive-like opinions confidently presented as singularly correct are

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74. RONALD M. DWORKIN, LAW'S EMPIRE (1986).

75. *Id.* at 225. Dworkin explains, "[a]ccording to law as integrity, propositions of law are true if they figure in or follow from the principles of justice, fairness, and procedural due process that provide the best constructive interpretation of the community's legal practice." *Id.*

76. *See id.* chs. 6, 7. Thus to make her decision, Dworkin's judge finds the most coherent equilibrium between her working conception of principles of justice, fairness, and procedural due process. *See id.* at 236-37.

The classic text by Henry Black on the interpretation of statutes is informative. Black instructs judges to harmonize the statute with pre-existing law, to make all the provisions of a statute consistent with each other, to interpret statutes with reference to other acts, and to treat the various parts of a body of compiled laws as making up one entire and harmonious system. *See* H. C. BLACK, HANDBOOK ON THE CONSTRUCTION AND INTERPRETATION OF THE LAWS (1896) (I thank Lewis Sargentich for bringing this text to my attention). On the use of coherence as a constitutive principle, see Joseph Raz, *The Relevance of Coherence*, 72 B.U. L. REV. 273 (1992); *see also* KENNEDY, CRITIQUE OF ADJUDICATION, *supra* note 55, at 33-37.

77. This approach comports generally with the view that adjudication is foremost a form of social ordering. *See, e.g.*, Lon L. Fuller, *The Forms and Limits of Adjudication*, 92 HARV. L. REV. 353, 357 (1978). More specifically, Pound stated flatly that the judicial quest for certainty contributes to the social order. *See* Pound, *Realist Jurisprudence*, *supra* note 2, at 10.

78. POSNER, JURIS. PROBLEMS, *supra* note 1, at 194. Posner explains:

> The belief that judges are constrained by law, that there is more to law than the will to power, is a deeply ingrained feature of the legal culture. And this makes the expectation that judges will behave in accordance with that belief to an extent self-validating. A judge who flouts this expectation is likely both to feel uncomfortable and to attract professional criticism, which will make him more uncomfortable . . . .

perceived to "carry conviction."[79] The acceptability of a court's decisions bears a significant influence on its institutional legitimacy.[80] This viewpoint is supplemented by the broadly held notion that responsibility (professional, political, moral or otherwise) is contingent on the degree of freedom available to the protagonist.[81] Since judges are unlikely to be held responsible for decisions they were compelled to make, the image of the judge as mere finder of law minimizes their exposure to criticism.[82] Furthermore, the sense of inevitableness alleviates the judiciary's deeply-felt institutional inferiority, commonly referred to as the *counter-majoritarian anxiety*.[83] This depiction of the judicial process also is compatible with the accepted allocation of power to the judicial branch. Thus, opinions that are

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Id.; *see also id.* at 46. Gewirtz explains that "[a]cknowledging complexity, ambivalence, and subjectivity, on this account, threatens the legitimacy of a decision backed by state power." Gewirtz, *supra* note 55, at 1042. This approach can be traced back to Dewey, who explains that certainty facilitates action, while uncertainty might be paralyzing. *See* JAY KATZ, THE SILENT WORLD OF DOCTOR AND PATIENT 175 (1984).

79. Schaefer, *supra* note 9, at 10.

80. Gewirtz observes that the judicial rhetoric is closely related to the legitimacy of the institution. Gewirtz, *supra* note 55, at 1042.

81. This intuition is well-established in social research. *See, e.g.*, J. W. BREHM & A. R. COHEN, EXPLORATIONS IN COGNITIVE DISSONANCE (1962); HERBERT C. KELMAN & V. LEE HAMILTON, CRIMES OF OBEDIENCE (1989); STANLEY MILGRAM, OBEDIENCE TO AUTHORITY (1974); Bobby Calder et al., *Attitude Change and Attitude Attribution: Effects of Incentive, Choice and Consequences*, 25 J. PERSONALITY & SOC. PSYCHOL. 84 (1973); Keith E. Davis & Edward E. Jones, *Changes in Interpersonal Perception as a Means of Reducing Cognitive Dissonance*, 61 J. ABNORMAL & SOC. PSYCHOL. 402 (1960).

82. Posner states that most judges believe "the judiciary's effectiveness depends on a belief by the public that judges are finders rather than makers of law." POSNER, JURIS. PROBLEMS, *supra* note 1, at 190.

83. Cardozo observed "discretion, unmeasured and unregulated, is felt to open the door to tyranny and corruption." CARDOZO, *Jurisprudence*, *supra* note 5, at 23. Posner calls this phenomenon the "formalist anxiety." POSNER, JURIS. PROBLEMS, *supra* note 1, at 143. He explains that judges favor an interpretive formulation of their practice because "it casts them in a less creative, and therefore less usurpative-seeming, role." *Id.* at 46.

Judge Wald suggests the "oft-challenged and arguably shaky authority to tell [other branches of government] what to do" is central to the writing of opinions. *See* Wald, *Rhetoric of Results*, *supra* note 65, at 1372. Ferguson states that the vulnerability stemming from the judges' non-majoritarian status "helps explain why judicial formalisms of all kinds continue to thrive long after the loss of professional consensus on objective decision-making." Ferguson, *supra* note 55, at 207. Eskridge and Frickey explain that the counter-majoritarian anxiety causes judges to avoid the charge of subjectivity and pull their decisions towards more "objective" evidence. Eskridge & Frickey, *supra* note 52, at 379.

perceived to be products of legal necessity contribute to the maintenance of the status quo within the legal order.[84]

To a significant extent, the prescriptive and functional explanations are valid. It is a central tenet of role theory that people's behavior is influenced by their conceptions of their roles.[85] If judges believe that by adhering to the finder metaphor they are performing their tasks appropriately and effectively, they will naturally conceive their role in that fashion and will likely behave in ways that correspond to that conception.[86]

I suggest, however, that the prescriptive and functional approaches do not put the conundrum of the judicial practice to rest. First, these explanations entail some degree of deception by judges. If, as I have assumed, the law is not as constraining, certain, and singularly correct as depicted in judicial opinions,[87] then we would want to know more about the discrepancy between judges' experiences and how they depict these experiences. It would seem that at some point during the process the judge entertains the following thought: "even though the law seems coherent and I am not constrained by a singularly correct decision, I will nonetheless report closure because that is what I am expected to do and that serves the judicial function best." Lacking any insight into the phenomenological experience of the judge, the proponents of the prescriptive and functional explanations must concede that either their view of judging is incomplete, or it relies on some form of judicial disingenuousness. The proposed psychological model is consistent with the view that the experience reported by judges in opinions is largely genuine. Judges do not intentionally deceive their audiences.[88] Before one charges judges of engaging in deceit, less damning explanations ought to be explored.

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84. POSNER, JURIS. PROBLEMS, *supra* note 1, at 143; Eskridge & Frickey, *supra* note 54, at 379; Ferguson, *supra* note 55, at 207, 213; Gewirtz, *supra* note 55, at 1042.

85. *See generally* BRUCE J. BIDDLE, ROLE THEORY: EXPECTATIONS, IDENTITIES, AND BEHAVIORS (1979).

86. Altman, *supra* note 53. For a discussion on the influence of the judicial role-conception on judging, see James L. Gibson, *The Role Concept in Judicial Research*, 3 LAW & PUB. POL'Y Q. 291 (1981).

87. *See supra* notes 69-73 and accompanying text.

88. On the judicial phenomenological experience and judicial manifestations of awareness, see *infra* notes 470-75 and accompanying text. It is difficult to believe that intentional deception would not have withstood the test of time. Somewhere along the line the veil of deceit would have been lifted.

On the candor debate, see, for example, Altman, *supra* note 53; Scott C. Idleman, *A Prudential Theory of Judicial Candor*, 73 TEX. L. REV. 1307 (1995); David L. Shapiro, *In Defense of Judicial Candor*, 100 HARV. L. REV. 731 (1987); Nicholas S. Zeppos, *Judicial*

In addition, the prescriptive and functional explanations suffer from the problem that plagues most theories of judging: they lack the capability of offering a detailed, low-level account of how closure (or any other jurisprudential desideratum) is actually brought about. This is a crucial drawback.[89] As suggested in this Article, the nature of judicial reasoning is inextricably related to the mental processes operative in the making of judicial decisions. Thus, to understand the central features of judicial reasoning one must investigate the cognitive operations through which these decisions are made.

The following model adopts a psychological perspective. The model is based on a synthesis of research from a number of strands in scientific psychology, namely cognitive-psychology, social-psychology, and decision making theory, and is supported by a recent series of experiments.[90] Although scientific psychology is still incapable of "accurately reporting" the operations of the mind as desired by some judges,[91] it is capable of unearthing and illuminating some important aspects of the decision making process in the judicial context.[92] This perspective will hopefully provide a better understanding of the process, its outcomes, its strengths and limitations.

It must be acknowledged that adopting the scientific psychological perspective is essentially a methodological choice. This choice is determined by the analytical and explanatory power offered by this perspective and does not reflect a belief that the observed phenomena are caused exclusively or primarily by psychological factors rather than by social factors or role conceptions. The psychological experience of a person is affected by social and functional factors including role-conception, context, strategic goals, and accountability.[93] One of the advantages of psychological models of the

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Candor and Statutory Interpretation, 78 GEO. L.J. 353 (1989).

89. *See infra* text following note 126.

90. *See* Keith J. Holyoak & Dan Simon, *Bi-directional Reasoning in Decision Making by Constraint Satisfaction*, 128 J. EXPERIMENTAL PSYCHOL.—GEN. 1 (1999); Dan Simon et al., The Emergence of Coherence Over the Course of Decision Making (forthcoming).

91. *See* Schaefer, *supra* note 9.

92. In law, the term "decision making" is generally used in a broad sense, referring to anything associating with what judges do. I find that even the most general discussions of the judicial function are described as "decision making." In this Article, the term "decision making" will be used to refer specifically to the mental processes involved in the making of decisions.

93. The influence of role-conception on cognitive processing was demonstrated experimentally by Robert Zajonc. *See* Robert B. Zajonc, *The Process of Cognitive Tuning in Communication*, 61 J. ABNORMAL & SOC. PSYCHOL. 159 (1960). For more on situational

kind presented here is that they can encompass the person's experience of these external forces. The influence of such factors on the judicial decision making process will be discussed below.[94]

C. Introducing the Psychological Model

Legal reasoning is treated here as a type of generic human reasoning: that of making *inferences*. An inference is defined broadly as any reasoning process in which some new proposition is generated on the basis of existing knowledge, that is, any "move" from a premise to a proposition. Legal arguments are essentially inferences. For example, an application of a rule to a factual pattern, an induction of a principle from an assortment of authorities, a determination of a person's mens rea from his behavior, an interpretation of a word, and an analogy from one case to the next, are all inferences. Legal decisions, judicial decisions included, are determined by the inferences that support them. A common feature of legal decisions is that they are rarely based on singular arguments. They typically comprise of a multitude of facts, concepts, propositions, and two alternative decisions—all of which are interconnected through inferences.[95] The task facing the judge is to evaluate propositions that are supported by multiple inferences. The judge must both *make* the individual inferences and *integrate* them into a discrete choice. The proposed psychological model is based on the view that these two mental tasks are anything but unrelated. This model explores how inferences are made and integrated, and how the tasks interrelate.

It is fair to assume that in all but the easiest of cases, some of the arguments that initially appeal to the judge support one decision alternative, while other, similarly valid arguments, support the opposite alternative. It is this state of complexity and contradiction among the arguments that makes for a *hard case*. In sharp contrast, judicial opinions typically convey closure. Most notably, the reasons offered are distinctly coherent, in that all of the arguments endorsed by the judge support the judge's decision, whereas the arguments made to support the opposite course of action are ignored, suppressed or rejected. From reading the typical judicial opinion one can

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influences on people's psychological states, see LEWIN, *infra* note 175; *see also* Forgas, *infra* note 178 (typology of decision making tasks).

94. *See infra* notes 367-85 and accompanying text (discussing the influence of social factors on the decision).

95. Throughout this Article, decisional dilemmas will be assumed to offer only two alternative choices. For our purposes, there is no material difference between bi-alternative decisions and multiple-alternative ones.

hardly imagine that at some earlier stage the dispute was fraught with complexity, conflict and contradiction.

This psychological model examines this shift from conflict to closure. A central tenet of the model is that this shift genuinely manifests a transformation of the way the dispute is represented in the judge's mind. During the course of deciding a hard case, the judge's mental representation of the dispute evolves naturally towards a state of coherence. That is, the cognitive system *imposes coherence* on the arguments so that the subset of arguments that supports one outcome becomes more appealing to the judge and the opposite subset, including arguments that previously seemed appropriate, turns less favorable. Thus, the legal materials are cognitively changed from their initial state to some modified state. The factual patterns, the authoritative texts, and the resulting propositions are *restructured.* This restructuring of the legal materials is crucial in that it *spreads apart* the opposing arguments and thus differentiates the vying outcomes. Towards the end of the taxing process, one decision alternative becomes dominant over the other.

This lopsided view of the case has a strong influence on the way the judge decides and reasons her decision. The decision flows virtually freely from the dominating alternative, and the outcome supported by the favorable and coherent set of arguments is chosen as the winning decision and the opposite course of action is easily dismissed. Moreover, the state of dominance makes the decision appear to the judge to be necessitated by the legal materials, and it portrays it as certainly and singularly correct. This mental state gives the judge a sense that she was constrained by the legal materials to decide as she did. The modified view of arguments (supplemented with the ex post facto rationalization of the outcome) is then reported in the judicial opinion as declarative of the law governing the case. This is what gives the opinions their distinct sense of closure.

Like many other cognitive features of its kind, this process of coherence-seeking has both a *facilitative* and *biasing* effect. This feature will be called the *coherence bias*. The principal objectives of this Article are to ascertain the coherence bias, to understand its function in the judicial decision making process, and to evaluate its influence on judicial reasoning and on the law in general.

Judicial decision making, as viewed by this model, is far more complex than it appears. It is a principled endeavor in that it follows the conventions of legal discourse. At least in the type of cases examined here, in which the

judges have low stakes,[96] the major criterion used to determine the decision is the strength of the arguments that support the respective decisions. However, the arguments themselves rely on legal materials whose meaning and implications are altered throughout the process. In sum, judicial decisions are determined by legal materials that are restructured in turn by the process of making the decision. Accordingly, judicial reasoning can be described as *bi-directional.*

It is very important to note that judges are mostly *unaware* of the cognitive processes that are responsible for the restructuring of the legal materials. They are also generally unaware that their evaluation of the materials is effected by the coherence bias. As a consequence, the judge's experience of constraint, certainty and singular correctness are by and large *phenomenologically genuine.* Furthermore, judges tend not to recognize that these experiences are mostly a product of their mental process; instead, they *misattribute* them to the law itself.

Typically, decision processes do not end as soon as the person decides which outcome to choose. The dominance of the winning decision alternative is further intensified by a subsequent phase of *rationalization.* This subsequent rationalization is grounded in both a personal need to increase one's confidence[97] and a public need to enhance the acceptability of the decision by the relevant constituents. The psychological model suggests that this familiar phenomenon of rationalization is of secondary importance. The model focuses on the initial phase of arriving at the decision.[98]

In this model the term "coherence" is used to describe situations in which propositions that have similar implications for the decision are similarly activated. That is, arguments that support one decision are endorsed by the decision made, while arguments that support the antithesis are rejected. This conception of coherence must be distinguished from the more familiar usage of coherence as a constitutive principle. In the latter sense, coherence is used to determine the relationship between a proposition entailed in a judicial decision and precepts of law that are exterior to the decision itself. This constitutive conception of coherence pertains to relationships among propositions across fields of law, over time, within and among statutes, and across jurisdictions. In contrast, the type of coherence

96. This model focuses on situations in which the judge is perceived to have low stakes in the case.

97. *See* Holyoak & Simon, *supra* note 90; Simon et al., *supra* note 90.

98. *See infra* notes 163-164 and accompanying text (focusing on the phase leading to decision and not on ex post facto rationalizations).

examined in this psychological model concerns relationships among arguments that are operative within a particular judicial decision; it is a property of singular decisions. Thus, as used in this psychological model, coherence concerns us as an empirical observation, not as a jurisprudential ideal.[99]

As an aside, it should be noted that judicial argument is not unique in its recourse to strong forms of closure. Historical discourse is another notable example. As psychologist Baruch Fischhoff reports, the study of history is often couched in the narrative structure of "good stories," in which all the supporting details are neatly accounted for while the inconsistent ones are buried alongside any confusion the historian might have suffered.[100] The study of the judicial variant of this discursive style can thus be justified not only as a means for enhancing our understanding of the vital practice of judging and of the legal discourse it engenders. It might also serve as a contribution to our general understanding of social behavior by illuminating the various ways people think, decide and persuade others.

D. Mapping Related Perspectives and Theories

In order to better appreciate the potential contribution of the psychological model it is best to compare it to related perspectives and theories extant in legal and psychological scholarship. This comparison highlights the assumptions, aspirations and methods of this model, as well as its restrictions and limitations.

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99. *See supra* notes 74-76 (coherence as constitutive principle). There is disagreement among coherence theorists as to the scope of legal materials within which relations of coherence pertain. *See, e.g.*, Raz, *supra* note 76, at 310.

Although the two kinds of coherence are largely separable, they occasionally overlap; but this will occur only in the easiest of cases. The proposed distinction resembles the distinction between "normative coherence" and "narrative coherence," as suggested by Jan M. Van Dunne, *Narrative Coherence and Its Function in Judicial Decision Making and Legislation*, 44 AM. J. COMP. L. 464, 464-65 (1996).

100. *See* Baruch Fischhoff, *For Those Condemned to Study the Past: Heuristics and Biases in Hindsight*, *in* JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 335, 348 (Daniel Kahneman et al. eds., 1982). Fischhoff quotes Tawney: "Historians give an appearance of inevitability to an existing order by dragging into prominence the forces which have triumphed and thrusting into the background those which they have swallowed up." *Id.* A similar phenomenon is the general tendency to prefer singularly-determined explanations over multiply-determined alternatives. *See* RICHARD NISBETT & LEE ROSS, HUMAN INTERFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT (1990).

1. Jerome Frank's *Law and the Modern Mind*

The most broadly recognized application of psychological theory to law is Jerome Frank's *Law and the Modern Mind.* The point of departure for Frank's fierce attack on formalist jurisprudence is his suspicion of the certainty claimed to exist in law. He contrasts this claim with the observation that law is generally vague and uncertain.[101] Frank proceeds to explore law's alleged certainty: "Why do the generality of lawyers insist that law should and can be clearly knowable and precisely predictable although, by doing so, they justify a popular belief in an absurd standard of legal exactness?"[102] Frank challenges the broadly held belief that law can be, and is, certain by stating that law "is irrational and should be classed as an illusion or a myth."[103] The remainder of *Law and the Modern Mind* is dedicated to explain and deplore this "basic legal myth."[104]

Written at a time when Frank himself was undergoing psychoanalysis,[105] the book employs Freudian psychoanalytic theory to explain the quest for legal certainty. Frank's explanation revolves around the unconscious need to create a controllable universe by means of transferring the child's lost image of a father-authority to the law.[106] This fascinating book, which is still in print, drew intense responses from all directions: at

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101. FRANK, MODERN MIND, *supra* note 22, at 6.

102. *See id.* at 10.

103. *See id.* at 12.

104. *Id.*

105. *See* ROBERT JEROME GLENNON, THE ICONOCLAST AS REFORMER: JEROME FRANK'S IMPACT ON AMERICAN LAW 21 (1985).

106. *See* FRANK, MODERN MIND, *supra* note 22, at 177-80. Frank pointed out basic functional similarities between religion and law:

> [Most people] retain a yearning for Someone or Something, qualitatively resembling father, to aid them in dissipating the fear of chance and change. . . . To the child the father is the Infallible Judge, the Maker of the definite rules of conduct. He knows precisely what is right and what is wrong and, as head of the family, sits in judgment and punishes misdeeds. The Law—a body of rules apparently devised for infallibly determining what is right and what is wrong and for deciding who should be punished for misdeeds—inevitably becomes a partial substitute for the Father-as-Infallible-Judge. That is, the desire persists in grown men to recapture, through a rediscovery of a father, a childish, completely controllable universe, and that desire seeks satisfaction in a partial, unconscious, anthropomorphizing of Law, in ascribing to the Law some of the characteristics of the child's Father-Judge. That childish longing is an important element in the explanation of the absurdly unrealistic notion that law is, or can be made, entirely certain and definitely predictable.

Id. at 19.

once heralded as brilliant and condemned as superficial.[107] Much of its fame, as well as its notoriety, resulted from its caustic tone and the derisive, at times ad hominem, nature of Frank's criticism.[108]

Although *Law and the Modern Mind* and the psychological model proposed here seek to explain similar features of the law, they adopt different strands of psychology. Frank chose to apply the Freudian version of depth-psychology, an approach that is capable of generating rich and colorful insights into human behavior, but is largely impressionistic and lacks methodological rigor.[109] Frank's theory and the proposed psychological model differ also in the choice of the respective objects of examination. Although Frank discusses judging quite extensively, his principal object of study is a generic psychological need for certainty. Thus, *Law and the Modern Mind* is as much a study of the polity's psychology as it is a psychology of judging.[110] It is interesting to note that despite his harsh tone, Frank was quite optimistic with regard to the prospects of amelioration of human behavior, and judging in particular.[111] By contrast,

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107. For a discussion of the book and the reactions it elicited, see MORTON J. HORWITZ, THE TRANSFORMATION OF AMERICAN LAW 1870-1960: THE CRISIS OF LEGAL ORTHODOXY 175-80 (1992). Though he did not mention Frank or the book by name, Cardozo criticized *Law and the Modern Mind* as an "over-zealous" project suffering from "missionary ecstasy." CARDOZO, *Jurisprudence*, *supra* note 5, at 14. His endorsement of legal realism was accompanied by distancing himself from Frank's book; "I put aside therefore as false and unessential the derision and impatience that betray themselves here and there . . . these excesses of doctrine." *See id.* On Frank's sensitivity to Cardozo's critique, see RICHARD POLENBERG, THE WORLD OF BENJAMIN CARDOZO: PERSONAL VALUES AND THE JUDICIAL PROCESS 160-67 (1997). For a favorable contemporary view of *Law and the Modern Mind*, see Leon Shaskolsky Sheleff, *The Illusions of Law—Psychoanalysis and Jurisprudence in Historical Perspective*, 9 INT'L J.L. & PSYCHIATRY 113, 143-58 (1986).

108. *See* HORWITZ, *supra* note 107, at 175-80.

109. For a criticism of Frank's choice of psychology and its application to the law, see MORRIS R. COHEN, LAW AND SOCIAL ORDER: ESSAYS IN LEGAL PHILOSOPHY 357-61 (1933). On the convergence of Freudian theory with experimental psychology, see Drew Westen, *The Scientific Legacy of Sigmond Freud: Toward a Psychodynamically Informed Psychological Science*, 124 PSYCHOL. BULL. 333 (1998).

110. For a contemporary attempt in a similar vein, see Jack M. Balkin, *Understanding Legal Understanding: The Legal Subject and the Problem of Legal Coherence*, 103 YALE L.J. 105 (1993).

111. *See* FRANK, MODERN MIND, *supra* note 22, at 148, 153, 156-58. Frank's optimism is manifested in his belief that by means of psychological training, and by undergoing psychoanalysis, judges would be in a better position to handle the ill effects of their human biases on their judging. *Id.* The recommendation that judges undergo psychoanalysis is most explicit in Frank's *Courts On Trial*, where he suggested that all judges

this proposed model yields a more sober outlook.[112]

Following psychoanalytic tradition, Frank proceeded to apply his theory to individual jurists. He audaciously proposed a ranking of prominent scholars and judges on a scale of what he called emotional maturity—their ability to forego insistence on law's certainty. Dean Roscoe Pound, who at one stage was closely associated with legal realism, was ranked lowest by Frank. The chart was topped by Cardozo and Holmes. Grounded in scientific psychology, the proposed model explores regularities of mental processing, and does not does examine particular judges. It seeks to provide a psychological explanation not of judges, but of the practice of judging.

2. Duncan Kennedy's Phenomenology of Judging

A source of inspiration for the proposed psychological model is Duncan Kennedy's phenomenological account of adjudication.[113] Kennedy provides an intricate account of a judge's thought process as he proceeds to wrestle with the multitude of contradictory arguments, concepts, and objectives in the search for a global state of equilibrium. Throughout this process, the boundary line between judicial freedom and constraint is continuously crossed, blurred and shifted as Kennedy's judge affects, and is affected by, the legal materials. This arresting account, grounded in the philosophy of Sartre and Husserl,[114] is presented as a thought experiment. Its methodological aspirations are secondary. This psychological model of bi-directional judicial reasoning can be viewed as an attempt to incorporate some of Kennedy's insights into a more formal structure, that is cognitively realistic and based, at least in part, on empirical findings. The resemblance between phenomenological philosophy and the psychological model is no coincidence. Both of these approaches are grounded in the same holistic principles of Gestalt theory.[115]

"undergo something like psychoanalysis. . . . [S]uch self-knowledge, I think, can be of immense help in reducing the consequences of judicial bias." FRANK, COURTS ON TRIAL, *supra* note 6, at 250.

112. *See infra* notes 555-65 and accompanying text.

113. *See* Duncan Kennedy, *Freedom and Constraint in Adjudication: A Critical Phenomenology*, 36 J. LEGAL EDUC. 518 (1986) [hereinafter Kennedy, *Freedom and Constraint*]; *see also* KENNEDY, CRITIQUE OF ADJUDICATION, *supra* note 55, chs. 6,7.

114. *See* Kennedy, *Freedom and Constraint*, *supra* note 113, at 518 n.1.

115. On the close relationship between phenomenological philosophy and Gestaltian psychology, see Aron Gurwitsch, *Phenomenology of Thematics and of the Pure Ego*, *in* STUDIES IN PHENOMENOLOGY 175, 175-286 (John Wild et al. eds. & Frederick Kersten trans., 1966).

One major difference between this psychological model and Kennedy's project is that they examine different modes of judging. Kennedy focuses his account on the mental processes of a judge trying to reconcile his political agenda with the law. Indeed, Kennedy denies that judging can be anything but ideological.[116] In contrast, this psychological model assumes that, in some cases, judges do not have any substantial stakes in their decisions. This model seeks to explain the practice of judging across different types of cases, including cases where judging occurs in its non-political, most ideal form.[117]

3. Ronald Dworkin's Theory of Interpretation

The opening sentence in his influential *Law's Empire* is: "It matters how judges decide cases."[118] Notwithstanding its grounding in philosophical discourse, Dworkin claims that is theory provides a descriptive account of judicial decision making.[119] Indeed, the proposed psychological model and Dworkin's account share some important observations.[120] However, the two projects adopt very different analytical perspectives. Dworkin's account is constructed entirely within what he calls an *internal perspective* of the law: an examination grounded in the practice of legal argument itself.[121] Dworkin contrasts the internal perspective with the scientific, historical and sociological perspectives, whose insights—exemplified by the writings of Holmes, inter alia—produce a "depressing" social-theoretic jurisprudence.[122] In contrast, Dworkin's blend of the descriptive with the prescriptive yields an optimistic, ideal jurisprudence,[123] in which ordinary judges are presumed to be capable of emulating Olympian superhumans with a fair degree of success. Dworkin's methodological assumption, that

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116. *See* KENNEDY, CRITIQUE OF ADJUDICATION, *supra* note 55, at 40. For example, Kennedy states "[t]he activity of appellate courts is most clearly an instance of law making that disposes ideological stakes." *Id.*

117. *See infra* notes 182-84 and accompanying text.

118. DWORKIN, *supra* note 74, at 1.

119. Dworkin states "law as integrity provides an illuminating fit with our legal practice." *Id.* at 411.

120. *See infra* notes 490-95 and accompanying text (common observations).

121. Dworkin explains "judicial argument about claims of law is a useful paradigm for exploring the central, propositional aspect of legal practice." *Id.* at 14.

122. *Id.*

123. For a discussion of Dworkin's optimism on how law works itself pure, see *infra* notes 497-500 and accompanying text. The characterization of Dworkin's jurisprudence as "legal idealism" is borrowed from my professor, Lewis Sargentich.

the mental processes of judges can be explained from within the social practice which they drive, is problematic. Rather than adopt this apparently tautological reliance on the internal perspective, the proposed model resorts to the scientific discipline that is geared precisely to explain the mental processes that lie at the heart of the judicial function.[124]

One of the strengths of Dworkin's account of decision making is that it is a detailed one. He describes his theory as one that follows the arteries of the decision making process, down to the fine capillaries.[125] The psychological framework offered here joins the same venture and attempts to take the analysis one step further to yield more intricate details. Keeping with Dworkin's metaphor, this framework introduces a microscope to examine how the capillaries perform the osmotic activity that enables the circulatory function. Like most interpretive and jurisprudential theories, Dworkin uses plain language to describe the judicial decision making process. Thus, the judge *generates* justifications, *tests* conceptions, *constructs* theories, *develops* concepts, *discovers* principles, *composes* justifications, and *decides* which conception is the most satisfactory.[126] But to understand the judicial decision making process, it is not enough to know that judges generate, test, construct, decide and the like; we must learn also *how* they perform these mental operations. I aim to demonstrate that it is only through an empirically based psychological perspective that one can gain insight into the detailed workings of decision making, and that such insight is beneficial to our understanding of the practice.

4. Studies of Judicial Behavior

Another noteworthy theoretical approach towards judicial decision making is that of judicial behaviorism. This movement, based primarily in departments of political science, studies judicial decisions from a variety of vantage points, including a psychological perspective.[127] A great deal of attention has been directed at the relationship between judges' personal predispositions and the decisions they make. This approach is based on the claim that judicial decisions are affected to a large degree by extra-legal or quasi-legal factors, namely, the judge's general attitudes, values, and other

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124. Although this is not clear from reading Dworkin, the *internal perspective* and *judge-centered analysis* are quite separable. *Cf.* DWORKIN, *supra* note 74, at 125.

125. *See id.* at 412.

126. *See* RONALD DWORKIN, TAKING RIGHTS SERIOUSLY 106, 107, 116, 122 (1977).

127. For a comprehensive review of the current state of judicial behavior studies, see LAWRENCE BAUM, THE PUZZLE OF JUDICIAL BEHAVIOR (1997).

socially determined behavioral traits.[128] Proponents of this attitudinal approach perform sophisticated statistical analyses of judges' voting records, and produce attitudinal profiles for each judge.[129] Thus, more than any other school studying judicial behavior, the attitudinal theorists heed the realist call for a *prediction* approach to law, as first articulated by Holmes.[130] It is interesting to note, however, that attitudinal analyses have been overall unsuccessful in making inroads into legal discourse.[131] In sharp

128. For notable examples of writings from the judicial behavioral approach, see GLENDON A. SCHUBERT, THE JUDICIAL MIND: THE ATTITUDES AND IDEOLOGIES OF SUPREME COURT JUSTICES 1946-1963 (1965); GLENDON A. SCHUBERT, QUANTITATIVE ANALYSIS OF JUDICIAL BEHAVIOR (1959). A review of the literature can be found in the recent theoretical work JEFFREY A. SEGAL & HAROLD J. SPAETH, THE SUPREME COURT AND THE ATTITUDINAL MODEL (1993).

129. For a synthesis of theoretical approaches to judicial behaviorism, see James L. Gibson, *From Simplicity to Complexity: The Development of Theory in The Study of Judicial Behavior*, 5 POL. BEHAV. 7 (1983). For an experiment intended to determine the influences of judicial attitudes, see Peter J. van Koppen & Jan Ten Kate, *Individual Differences in Judicial Behavior: Personal Characteristics and Private Law Decision-Making*, 18 L. & SOC'Y REV. 225 (1984).

A more precise analysis can be produced by means of a qualitative examination of the judge's beliefs and dispositions. The problem with this approach is that judges' attitudes are rarely exposed openly and are normally difficult to discern reliably from their writings, biographies, and personal papers. Projects of this nature are possible only with regard to the few—mostly unique—judges, and only with regard to limited issues of particular interest to the judge. For a solid example, see Danzig, *supra* note 9.

130. Holmes proclaimed "the prophecies of what the courts will do in fact, and nothing more pretentious, are what I mean by the law." Holmes, *The Path of the Law*, *supra* note 4, at 460. For a strong expression of the predictive approach to jurisprudence, see FRANK, MODERN MIND, *supra* note 22. Frank says that if legal decisions "are based on the judge's hunches, then the way in which the judge gets his hunches is the key to the judicial process. Whatever produces the judge's hunches makes the law. What then, are the hunch-producers?" *Id.* at 112-13.

131. The recent work by Sisk, Heise, and Morriss is an exception. *See* Gregory Sisk et al., *Charting the Influences on the Judicial Mind: An Empirical Study of Judicial Reasoning*, 73 N.Y.U. L. REV. 1377 (1998). This study used the unique opportunity brought about by the sentencing guidelines crisis to examine how an array of variables influenced the decisions of a sizable number of federal judges. The results of this study lend partial support both to the "behavioral" or "attitudinal" model and to the "legal" model. *See* SEGAL & SPAETH, *supra* note 128.

The authors emphasize that their project is superior to previous studies of judicial behavior in that it does not suffice with examining the outcomes of decisions, but it also examines the judicial reasoning used by judges. It is important to distinguish between the objectives of that project and the objectives of the current psychological model offered in this Article. To appreciate this difference, one must pay attention to the kind of variables measured by these authors to identify the dependent variable "judicial reasoning." Sisk,

contrast to judicial behaviorism, the proposed psychological model concerns itself with the process of making decisions rather than with judicial outcomes. It seeks to explain *how* judges make decisions and *how* they reason their decisions, but it is ignorant of, and indifferent to, *what* judges ultimately decide.

Another line of judicial behavioral research has focused on the interpersonal processes among judges. This line of inquiry examines how the decision behavior of judges is affected by their membership in groups.[132] Although social dynamics, most notably coalition building, can have a significant influence on the way a judge behaves, the model presented in this Article focuses on the thought processes of single judges.

5. Pennington and Hastie Story Model

Some of the general features of the proposed psychological model closely resemble the work of psychologists Nancy Pennington and Reid Hastie. Their model examines how jurors evaluate evidence for trial purposes. The model shows that the evaluation of the pieces of evidence is guided at the global level by a cognitive representation that integrates the facts into a coherent *story*. When more than one story is offered at trial, the juror chooses the story that is perceived to offer the best coverage of the evidence and is the most "coherent"—in this usage, coherent stories are ones that are consistent, plausible and complete. The juror determines the verdict by matching the chosen story to the verdict categories as instructed by the judge.[133] The story model is probably one of the most broadly accepted

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Heise, and Morriss performed a content analysis of the constitutional doctrine (four doctrines were found to be relevant) and of the kind of jurisprudence (*viz.*, practical versus conceptual, and originalist versus non-originalist kinds of arguments) employed by each of the judges. Indeed, constitutional doctrines and jurisprudential approaches of this sort are commonly referred to in legal discourse as the "reasons" of a decision. From a psychological perspective, however, these variables are better viewed as attitudes, beliefs, or dispositions, which affect the content of the decision, but not the processes involved in making them.

132. For a review, see BAUM, *supra* note 127, at 105-10.

133. *See* Nancy Pennington & Reid Hastie, *Reasoning in Explanation-Based Decision Making*, *in* REASONING AND DECISION MAKING 123 (Philip Nicholas Johnson-Laird & Eldar Shafir eds., 1994) [hereinafter Pennington & Hastie, *Explanation-Based Decision Making*]; *see also* Pennington & Hastie, *A Cognitive Theory of Juror Decision Making: The Story Model*, 13 CARDOZO L. REV. 519 (1991) [hereinafter Pennington & Hastie, *The Story Model*]; Pennington & Hastie, *Evidence Evaluation in Complex Decision Making*, 51 J. PERSONALITY & SOC. PSYCHOL. 242 (1986) [hereinafter Pennington & Hastie, *Evidence Evaluation*]. Paul Thagard's ECHO model has also been applied to the evaluation of factual evidence. *See* Paul Thagard, *Explanatory Coherence*, 12 BEHAV. & BRAIN SCI. 435 (1989).

applications of scientific psychology to law. It is interesting to note that it has also had a considerable impact on psychological research in general.

The Pennington and Hastie story model does not explicate the cognitive processes on which it is based, though it is apparent that it is driven by the holistic processes outlined in this Article. Both models also limit themselves to the processing of data; they assume that the relevant data has been presented to the decision maker, and they do not examine how people seek out additional information. The story model differs from the proposed psychological one in that it is confined to the construction of factual evidence, particularly in situations where the question is: *what happened?*[134] The proposed psychological model is more ambitious in that it attempts to encompass a broader range of reasoning processes, including inferences based on high level, abstract concepts.

6. Additional Related Approaches

Another notable effort to explain appellate judicial decision making from a psychological perspective is that of legal psychologist Lawrence Wrightsman. Wrightsman's explanation is based primarily on social-cognition, a sub-field of scientific psychology, and overlaps in part with the theoretical basis of the current model.[135] The two projects differ in that, like Kennedy's approach, Wrightsman's examination concentrates on result-oriented adjudication.[136]

The proposed model bears a familial relationship to an emerging movement called psychological jurisprudence. The overall objective of this assemblage of approaches is to promote an understanding of law and society through theories that describe, explain, predict and proscribe the law from a psychological perspective.[137] On the prescriptive side, psychological jurisprudes call for a higher sensitivity in law to psychologically derived norms—primarily human dignity and the related aspects of personal, family,

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134. *See* Richard Llempert, *Telling Tales in Court: Trial Procedure and the Story Model*, 13 CARDOZO L. REV. 559 (1991).

135. Lawrence S. Wrightsman, The Psychology of Supreme Court Decision Making, Address at the American Psychological Association (Aug. 1998); LAWRENCE S. WRIGHTSMAN, JUDICIAL DECISION-MAKING: IS PSYCHOLOGY RELEVANT? (forthcoming 1999).

136. Wrightsman relies most notably on social psychologist Ziva Kunda's work on motivated reasoning. *See* Ziva Kunda, *The Case for Motivated Reasoning*, 108 PSYCHOL. BULL. 480 (1990).

137. *See* Mark A. Small, *Advancing Psychological Jurisprudence*, 11 BEHAV. SCI. & L. 3 (1993).

and community life.[138] The endeavor is vast in scope, and it spans a variety of legal actors, including legislators, judges, jurors and bureaucrats. The proposed psychological model is related most closely to the strand of analytical research that applies cognitive psychology to the law. To date, this research has focused heavily on the functioning of the jury, largely shunning decision making by judges.[139]

There have been some notable attempts within legal scholarship to apply cognitive science to the law.[140] Overall these projects have followed the practice of legal theory to operate at high theoretical levels, and have resorted mostly to abstract propositions made available at the far reaches of cognitive science.[141] In contrast, this model resorts to the empirically based, psychological strand of cognitive science, and applies it at a level that allows for more directly applicable links. It should be noted that this model does not refer directly to the field of behavioral decision theory,[142] and its

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138. *See* Garry B. Melton, *The Law Is a Good Thing (Psychology Is, Too)*, 16 LAW & HUM. BEHAV. 381 (1992). An additional strand of psychological jurisprudence is concerned primarily with the function of law as a therapeutic agent in the context of mental health. *See* DAVID B. WEXLER, THERAPEUTIC JURISPRUDENCE: THE LAW AS A THERAPEUTIC AGENT (1990); Wexler, *Reflections on the Scope of Therapeutic Jurisprudence*, 1 PSYCHOL. PUB. POL'Y. & L. 220 (1995).

139. *See, e.g.*, Richard L. Wiener et al., *Psychological Jurisprudence and the Information Processing Paradigm*, 11 BEHAV. SCI. & L. 79 (1993). For an extensive and updated review of jury decision making, see Phoebe C. Ellsworth & Robert Mauro, *Psychology and Law*, *in* 2 THE HANDBOOK OF SOCIAL PSYCHOLOGY 684, 693-702 (Daniel T. Gilbert et al. eds., 4th ed. 1998).

140. *See* Steven L. Winter, *The Metaphor of Standing and the Problem of Self-Governance*, 40 STAN. L. REV. 1371 (1988); Winter, *Transcendental Nonsense, Metaphoric Reasoning, and the Cognitive Stakes for Law*, 137 U. PA. L. REV. 1105 (1989). The proposed psychological model uses a fairly strict conception of the term "cognitive." For looser definitions, see Pierre Schlag, *Missing Pieces: A Cognitive Approach to Law*, 67 TEX. L. REV. 1195 (1989); *see also* Mark Suchman, *On Beyond Interest: Rational, Normative and Cognitive Perspectives in the Social Scientific Study of Law*, WIS. L. REV 475, 482-84 (1997).

141. *See* Small, *supra* note 137, at 10.

142. For reviews of behavioral decision theory, see Robyn M. Dawes, *Behavioral Decision Making and Judgment*, *in* 1 THE HANDBOOK OF SOCIAL PSYCHOLOGY, *supra* note 139, at 497. For applications of behavioral decision theory to law, see Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998); Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. (forthcoming 1998); Donald Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship*, 51 VAND. L. REV. 1499 (1998); Jeffrey Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571 (1998).

findings known as cognitive biases and heuristics.[143] It is important to note that the research on biases and heuristics concentrates on static and sporadic deviations from precepts of rational behavior. However valuable, these insights have not yet been incorporated into a comprehensive process model of decision making.

The judicial function is a vast human practice that can be usefully examined from social, political, philosophical, economical, psychological and other theoretical paradigms. No single perspective is capable of capturing judging comprehensively. It is incumbent on us to choose the paradigm that best illuminates the phenomena we seek to understand; this belief underlies the choice of the psychological perspective to explain the phenomenon of closure in judicial reasoning. During a time of sharp divide within American legal scholarship, Roscoe Pound admonished, "[i]n the house of jurisprudence there are many mansions. There is more than enough room for all of us and more than enough work."[144] Thus, rather than compete for theoretical dominance, scholars should be encouraged to pursue each and every avenue capable of enhancing our understanding of the complex and vital practice of judicial decision making.

E. Methodological Issues

The ideal way to gain insight into the psychological workings of judging would be by directly examining judges' thought processes while they are actually engaged in making decisions in their natural settings. That, however, is impossible to do. This model takes an alternative route of applying a general psychological theory to the judicial practice.[145] This approach is not free of methodological concerns.

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143. For reviews of cognitive biases and heuristics, see DANIEL KAHNEMAN ET AL., JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (1982). For applications to this field of law, see Edward McCaffery et al., *Framing the Jury: Cognitive Perspectives on Pain and Suffering Awards*, 81 VA. L. REV. 1341 (1995); *see also* Donald Bersoff, *Judicial Deference to Nonlegal Decisionmakers: Imposing Simplistic Solutions of Cognitive Complexity in Mental Health Law*, 46 SMU L. REV. 329 (1992).

144. Pound, *Realist Jurisprudence*, *supra* note 2, at 711; *see also* BAUM, *supra* note 127, at 128.

145. Other options are also available. One way would be to recruit judges to participate in mock trials. For examples of this approach, see van Koppen and Kate, *supra* note 129; Reid Hastie & W. Kip Viscusi, *What Juries Can't Do Well: The Jury's Performance as a Risk Manager*, 40 ARIZ. L. REV. 901 (1998).

1. Applicability of Psychological Theory to Judging

One major methodological question is whether a psychological theory, derived from findings made in the synthetic environment of controlled experimentation, can be used to describe the mental processes of actual judicial decision making. The concern then is with the *applicability* of the general theory to such a context-sensitive, worldly practice. The principal endeavor of scientific psychology is the discovery of observable regularities in mental processes. Thus, when coming to apply a psychological theory to a practice, it must be shown foremost that the regularities explained by the theory are indeed relevant to that practice. I propose that this is the case before us. The psychological approach to inference based decision making is designed to address the very kind of tasks that face judges: making discrete choices between competing courses of action that are influenced by a multitude of inferences. This is the basis for the methodological assumption that applies this psychological theory to judicial decision making.[146]

The proposed model prefers the importation of a general theory into law over a familiar tendency in legal theorizing to insist on the autonomous nature of legal decision making.[147] To sustain an *internal* explanation of judicial reasoning, its proponents would be expected to lift the onus and show in what way the cognitive processes of judges are unique. Had the internal perspective not been so pervasive in legal scholarship, it might have been too obvious to mention that judges, after all, are "quite like the rest of us."[148] While judges clearly benefit from some advantages borne by their discipline-specific expertise,[149] it is very doubtful whether the cognitive

146. On the question of applicability of psychological research to law, see generally Gary L. Wells, *Experimental Psychology and the Courtroom*, 2 BEHAV. SCI. & L. 363 (1984).

147. *See supra* notes 118-20 and accompanying text (discussing Dworkin's internal perspective of the law).

148. Robert Cover, *The Supreme Court, 1982 Term: Forward: Nomos and Narrative*, 97 HARV. L. REV. 4, 67 (1983); *see* LEARNED HAND, *How Far Is a Judge Free in Rendering a Decision?*, *in* THE SPIRIT OF LIBERTY 103, 107 (1960). Morris Cohen explained: "we must not forget that actual law is a human product—made and administered by judges who are not free from human limitations in intelligence and goodwill." MORRIS R. COHEN, *supra* note 109, at 337.

149. As Gary Blasi suggests in his important discussion of legal expertise, legal experts have advantages in both the quantity of knowledge they hold and their organization of that knowledge. Experts are better than novices in their perception and memory of patterns and structures, and they can use their superior capabilities of "forward" reasoning to solve problems faster. *See* Gary L. Blasi, *What Lawyers Know: Lawyering Expertise, Cognitive Science, and the Functions of Theory*, 45 J. LEGAL EDUC. 313 (1995). Similarly, Hastie and Viscusi have shown that judges are better allocators of risk than are lay people. *See* Hastie &

processes underlying the making of their decisions are any different. The reasoning processes of the jurist, Dewey argued, are similar to those of the engineer, the banker, the farmer, and the merchant.[150] A similar assumption is made by those who view legal reasoning as a branch of practical reason. In this view, legal reasoning is exercised by the same processes that guide the multitude of reasoning tasks in everyday life: "there is no distinctive methodology of legal reasoning."[151]

This assumption of applicability is strengthened by the fact that many of the central phenomena described by this psychological model have been reported by legal scholars and, more importantly, by judges.[152] This Article refers repeatedly to insights offered by Cardozo, Holmes, Posner, Schaefer, Leflar, and Llewellyn. These writers have withstood the test of time (being a contemporary, Judge Posner is yet to attain that status), and that is what justifies our reliance on them. To the extent that the explanation provided by this model comports with the insights of these figures, it gains support from their legacy. It should be noted, however, that the insights of these esteemed jurists are incomplete; this proposed model attempts to incorporate them into a comprehensive, psychologically valid account.

The applicability of the psychological theory to the judicial practice lends support, albeit indirectly, from its correspondence to the actual behavior of judges. The patterns of judicial reasoning offered by judges bear a structural resemblance to those observed in experimentation, and many judicial practices match specific cognitive mechanisms explained by the theory. In short, judges' thought processes proceed as would be expected by the theory.

2. Reliability of Judicial Opinions as a Source of Data

Another methodological concern stems from the model's reliance on the judicial opinion as the principal source of data. Indeed, some judges have emphasized the discrepancy between the opinion and the decision making

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Viscusi, *supra* note 145. However, Howe and Loftus compared the decisions of college students with circuit court judges and found no significant differences. *See* Edmund Howe & Thomas Loftus, *Integration of Intention and Outcome Information by Students and Circuit Court Judges: Design Economy and Individual Differences*, 22 J. APPLIED SOC. PSYCHOL. 102 (1992); *see also* Nancy Pennington & Reid Hastie, *Practical Implications of Psychological Research on Juror and Jury Decision Making*, 16 PERSONALITY & SOC. PSYCHOL. BULL. 90, 96 (1990).

150. *See* DEWEY, *supra* note 32, at 18.

151. Posner, *Skepticism*, *supra* note 15, at 859.

152. *See infra* Part III.C.

process.[153] Posner states bluntly that "[w]e should not be so naive as to infer the nature of the judicial process from the rhetoric of judicial opinions."[154]

Some critics have expressed doubts as to whether the opinions accurately recount the actual mental processes that were involved in the making of the decision.[155] However, this concern is misplaced. Contrary to the belief of some judges and scholars,[156] opinions cannot depict the actual decisional processes as they transpire in the judges' minds. Significant components of the mental processes involved in complicated cognitive tasks such as judging occur outside of the thinker's phenomenological awareness or with minimal awareness.[157] Naturally, processes that are barely accessible are largely non-reportable.[158] Moreover, as suggested below, the making of a good decision is convoluted in that it entails an extensive series of constructing and testing of a large number of combinations of legal arguments.[159] Even if a full report of this process were possible, it would be unmanageably lengthy, very confusing, and thus quite useless. The judicial opinion is not, and thus should not be perceived to be, an account of the process itself. It is best perceived as a snapshot image of the representation of the decision at the end point of the process: an exposition of the reasons that were perceived by the judge as best supporting the decision.[160] These reasons are mostly accessible to consciousness and thus are reportable.

Two stronger objections arise from the fact that opinions are written with a purpose of persuading an audience.[161] Moreover, opinions are

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153. *See, e.g.,* RUGGERO J. ALDISERT, THE JUDICIAL PROCESS 374-464 (1976); Hutcheson, *supra* note 23, at 279; Leflar, *supra* note 8, at 734; *see also, e.g.,* FRANK, MODERN MIND, *supra* note 22, at 12.

154. Posner, *Skepticism, supra* note 15, at 865.

155. *See* Ferguson, *supra* note 55, at 208; Joel Levin, *The Concept of the Judicial Decision*, 33 CASE W. RES. L. REV. 208, 221-22 (1983).

156. Judge Coffin, for example, states: "[O]pen balancing restrains the judge and minimizes hidden or improper personal preference by revealing every step in the thought process . . . it offers a full account of the decision-making process for subsequent professional assessment and public appraisal." Frank M. Coffin, *Judicial Balancing: The Protean Scales of Justice*, 63 N.Y.U. L. REV. 16, 25 (1988).

157. *See infra* notes 343-47 and accompanying text (discussing a lack of awareness).

158. *See infra* notes 351-53 and accompanying text (explaining the difficulty with reporting processes).

159. *See infra* notes 286-99 and accompanying text (multiple model construction).

160. *See* FRANK, MODERN MIND, *supra* note 22, at 136. For commentary on Posner's opinion writing style, see WILLIAM DOMNARSKI, IN THE OPINION OF THE COURT 122-45 (1996).

161. On the persuasive function of opinions, see Benjamin Kaplan, *Encounters with O. W. Holmes, Jr.*, 96 HARV. L. REV. 1828 (1983); Leflar, *supra* note 8, at 817; Wald, *Rhetoric of Results*, *supra* note 65, at 1372; *see also* JAMES BOYD WHITE, *Rhetoric and Law:*

typically intended to address numerous audiences with different agendas.[162] One problem is that opinions tend to be over-inclusive, in that they include reasons that were not taken into consideration by the judge by the time the decision was made. It is a common feature of human decision making that after the decision is made, the person engages in rationalization of the decision. This ex post facto justification typically includes selective searches for information and the making of biased inferences. Judges are likely no exception; it is broadly believed that judges (or their clerks) introduce reasons into opinions merely to decorate, or *pad* them.[163] This padding of opinions makes it very difficult to determine which of the reasons furnished were actually active in the decision making process and which were not. There seems to be no good way to distinguish between the two types. It must be acknowledged, however, that padding is essentially an exaggeration of the number of reasons contained in the judicial opinion. Its effect on the opinion is mostly quantitative, and it can be generally corrected by recognizing that the number of active reasons is lower than the number offered in the opinion. It should be noted that the proposed psychological explanation is only marginally concerned with the specific number of reasons.[164] With this in mind, we can focus on the more important, structural features of the process.

At the same time, opinions also tend to be under-inclusive. That is, opinions do not include all the reasons which actually influenced the judge's decision. Naturally, judges leave out reasons of which they are not

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The Arts of Cultural and Communal Life, *in* HERACLES' BOW: ESSAYS ON THE RHETORIC AND POETICS OF THE LAW 47 (1985) [hereinafter WHITE, *Rhetoric and Law*]; Gewirtz, *supra* note 55, at 1039.

162. In a survey conducted in 1960, 25 justices and judges of the Unites States Supreme Court and the Courts of Appeals were asked, "to whom (or for whom) do you write your opinions?" The responses included the following: for posterity, the bar, future judges, the legislature, law students, readers of the *New York Times*, the losing lawyer, and brother judges. *See* Leflar, *supra* note 8, at 813-14.

On the problems associated with the need to communicate to multiple, diverse audiences simultaneously, see John H. Fleming, *Multiple-Audience Problems, Tactical Communication, and Social Interaction: A Relational-Regulation Perspective*, 26 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 215 (1994).

163. Judge Leflar explains: "[T]he judge to whom the case is assigned is then in effect told to make it look good." Leflar, *supra* note 8, at 817. A clerk of Justice Fortas tells of an instance where Fortas handed him a draft opinion and ordered "decorate it." LAURA KALMAN, ABE FORTAS, A BIOGRAPHY 271-72 (1990); *see also* Posner, *Judges' Writing Styles*, *supra* note 53, at 1441.

164. *See infra* notes 505-06 and accompanying text.

consciously aware,[165] as well as reasons they perceive to be negligible. They might also leave out reasons which, as Judge Leflar explains, are better "left unmentioned."[166] That is, reasons that breach the conventions of permissible reasoning. A "woman's blandishment," John Chipman Gray explained, is not a legitimate reason.[167] A judicial decision, we are told by some judges, can be influenced by the personal gratification of being invited to give lectures, by hopes for promotion, and by the occasional petty jealousies on the bench.[168] Motives of this type are unlikely to appear in judicial opinions.

There does not seem to be any solution to this under-inclusiveness. The judicial mind cannot confine itself to the pail of legal conventions, and it is free to withhold what it desires to keep private. As long as humans are at the helm of the adjudicatory process, judicial decisions are bound to be affected by extra-legal influences. We have no option but to accept this shortcoming and acknowledge that the reasons supplied by judges do not reflect the totality of the reasons that drove their decisions. In principle, the psychological model offered here technically is capable of incorporating the different types of factors that influence a decision, but there is no getting around the fact that these influences are omitted from the opinions and we know of no means of identifying them.[169] In the meantime, there is an abundance of yet unexplored phenomena in the opinions, and it is with these phenomena that this model presented in this Article is concerned.

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165. For a compelling experimental demonstration of how an unacknowledged cognitive factor can influence a decision, see S. Sherman & L. Gorkin, *Attitude Bolstering When Behavior Is Inconsistent with Central Attitudes*, 16 J. EXPERIMENTAL SOC. PSYCHOL. 388 (1980).

166. *See* Leflar, *supra* note 8, at 817-18.

167. *See* FRANK, COURTS ON TRIAL, *supra* note 6, at 178 (quoting John Chipman Gray).

168. *See* Wald, *Rhetoric of Results*, *supra* note 65, at 1372. Posner speaks of what he calls the seamier sides of judging, in which he includes "the unprincipled compromises and petty jealousies and rivalries that accompany collegial decision making, the indolence and apathy that life tenure can induce, the flickers of ambition for different or higher office, the boredom and burnout that heavy caseloads." POSNER, JURIS. PROBLEMS, *supra* note 1, at 191-92. *But cf.* FRANK COFFIN, ON APPEAL 254-55 (1994) (stating that factors such as ad hominem preferences are usually eliminated from influencing decisions). For a discussion of the variety of considerations affecting judicial decision making, see BAUM, *supra* note 127, ch. 2. For an experiment showing how impermissible factors influence decision making, see Christopher K. Hsee, *Elastic Justification, How Unjustifiable Factors Influence Judgment*, 66 ORG. BEHAV. & HUM. DECISION PROCESSES 122 (1996).

169. It should be noted, however, that in this regard the current model is in no worse a situation than other theories of judging that rely on the judicial opinion.

In sum, there are discrepancies between the public justifications of decisions and the actual workings of the process. Discrepancies of this kind, however, have not prevented scholars from relying on public statements to discern psychological theories about the behavior of actors in a variety of fields.[170] Indeed, the judicial opinion has been accepted in legal scholarship as a useful means for tapping the inner workings of the judicial process.[171] As long as we treat them with due caution, judicial opinions can serve as a fertile and valuable source of data. Reliance on opinions is supported by research that shows that most people's *private self* and *public self* are complimentary facets of the self-concept,[172] and there is considerable inter-dependency between these aspects.[173] In particular, it has been shown that the private and public needs for cognitive consistency overlap considerably. In other words, forms of behavior—intended to make people appear consistent with others—correspond closely to behaviors that make people appear consistent with themselves.[174]

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170. Analytical work using public statements has been done in the realms of international relations, congressional politics, and Supreme Court judicial decision making. *See* ROBERT JERVIS, PERCEPTION AND MISPERCEPTION IN INTERNATIONAL POLITICS (1976); Philip E. Tetlock, *Monitoring the Integrative Complexity of American and Soviet Policy Statements: What Can Be Learned*, 44 J. SOC. ISSUES 101 (1988); Tetlock, *Personality and Isolationism: Content Analysis of Senatorial Speeches*, 41 J. PERSONALITY & SOC. PSYCHOL. 437 (1981); Tetlock et al., *Supreme Court Decision Making: Cognitive Style as a Predictor of Ideological Consistency of Voting*, 48 J. PERSONALITY & SOC. PSYCHOL 1227 (1985).

171. *See* LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 58; James Boyd White, *What's an Opinion for?*, 62 U. CHI. L. REV. 1365, 1368 (1995); *see also* Ferguson, *supra* note 55, at 202; *cf.* CASS SUNSTEIN, LEGAL REASONING AND POLITICAL CONFLICT 94 (1996).

172. *See, e.g.*, Anthony Greenwald & Steven Breckler, *To Whom Is the Self Represented?, in* THE SELF AND SOCIAL LIFE 132-39 (Barry Schlenker ed., 1985).

173. *See* Barry Schlenker & Michael Weigold, *Interpersonal Processes Involving Impression Regulation and Management*, 43 ANN. REV. PSYCHOL. 133, 152-57 (1992). For a related discussion, see Philip E. Tetlock & A. Manstead, *Impression Management Versus Intrapsychic Explanations in Social Psychology: A Useful Dichotomy?*, 92 PSYCHOL. REV. 59 (1985). The exception to this general tendency is when people behave in ways that diverge significantly from their personal beliefs. On the psychological construct of Machiavellianism, see John Hunter et al., *Machiavellian Beliefs and Personality: Construct Validity of the Machiavellianism Dimension*, 43 J. PERSONALITY & SOC. PSYCHOL. 1293 (1982).

174. Cialdini, Trost and Newsom found high correlations between the constructs of internal consistency and public consistency. *See* Robert Cialdini et al., *Preference for Consistency: The Development of a Valid Measure and the Discovery of Surprising Behavioral Implications*, 69 J. PERSONALITY & SOC. PSYCHOL. 318, 319 (1995).

F. Focusing the Scope of the Model

This model adopts social-psychologist Kurt Lewin's view that behavior is always related to environmental contexts or the *psychological fields* within which the behavior is performed.[175] Thus, a judge's decision process is bound to be affected by the particular psychological environment within which it is performed. Rather than adopt a single unitary conception of the modus operandi of a judge—such as Dworkin's Hercules or Kennedy's political judge[176]—we can benefit more from following a differentiated approach that corresponds to more precise types of psychological environments in which judges operate.[177]

There is a great variety of available differentiating criteria, including task factors, issue features, personality variables, and degrees of personal involvement.[178] The proposed framework will utilize the variable of the judge's personal involvement—the judge's perceived *stakes* in the decision. Stakes are defined here as an interest or desire with regard to the consequences of the decision. Stakes can originate from outcome-relevance, such as the social end served by the decision; from value-relevance, such as the moral or political values that will be promoted; from party-relevance, such as a positive or negative relationship with or attitude towards the parties; and self-concept relevance, such as the perceived reflection of the decision on the judge's image, stature, or self-conception.[179]

A meaningful psychological distinction can be made among the three following situations: when the judge has *high stakes* in just *one* of the outcomes, *high stakes* in *both* outcomes, and *low stakes* in *both* outcomes.

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175. *See* KURT LEWIN, THE DYNAMIC THEORY OF PERSONALITY (1935).

176. *See* DWORKIN, *supra* note 74, at 239; Kennedy, *Freedom and Constraint*, *supra* note 113.

177. *See* POSNER, JURIS. PROBLEMS, *supra* note 1, at 193.

178. *See, e.g.*, John Payne et al., *Behavioral Decision Research: A Constructive Processing Perspective*, 43 ANN. REV. PSYCHOL. 87, 90 (1992); *see also, e.g.*, Joseph Forgas, *Mood and Judgment: The Affect Infusion Model (AIM)*, 117 PSYCHOL. BULL. 39, 48-51 (1995).

179. *See* Bas Verplanken & Ola Svenson, *Personal Involvement in Human Decision Making: Conceptualizations and Effects on Decision Processes*, *in* DECISION MAKING: COGNITIVE MODELS AND EXPLANATIONS 40 (Rob Ranyard et al. eds., 1997); *see also* William D. Crano, *Attitude Strength and Vested Interest*, *in* ATTITUDE STRENGTH: ANTECEDENTS AND CONSEQUENCES 131 (Richard E. Petty & Jon A. Krosnick eds., 1995); Milton Rosenberg, *Hedonism, Inauthenticity, and Other Goads Toward Expansion of a Consistency Theory*, *in* CONSISTENCY THEORIES 73, 90-96 (Robert P. Abelson ed., 1968); Cynthia J. Thomsen et al., *The Causes and Consequences of Personal Involvement*, *in* ATTITUDE STRENGTH: ANTECEDENTS AND CONSEQUENCES, *supra*, at 191.

This typology is not precise, comprehensive or exhaustive. It is a sample of three significant psychological environments that pose different mental challenges, and which are best approached from different psychological perspectives.[180] When a judge has high stakes in just one of the outcomes, she is said to be goal-driven, or politically motivated. The corresponding metaphor is that of a *political judge*. The bulk of mental effort in these cases is devoted to ground the preference in legal doctrine and to mask it in putatively neutral arguments. The second type consists of cases in which the judge has high stakes in both outcomes. In these situations, the decision will inevitably entail sacrificing one course of action that is dear to the judge (and most likely also dear to important reference groups). The judge is presumed to experience intense conflict within her self-concept. The metaphor that corresponds to this category of cases is that of the *self-conflicted judge*.[181]

This model focuses on judging cases in which the judge is deemed to have no particularly important stake in either outcome. This is Hobbes' vision of a person divested of all fear, anger, hatred, love and compassion.[182] The image of the judge in this environment is captured by the *neutral broker* metaphor—the regular, non-titan judge deciding a generic, *lawyers'-law* type of case.[183] It can be assumed that in these instances, judges genuinely strive to produce the decision that is best suited to the legal arguments, in accordance with conventions of legal reasoning. Although cases involving ordinary judges deciding ordinary cases are a common form of judging, particularly at the intermediate appellate level, they are generally deprived of scholarly and theoretical attention.[184] It should be noted that the relative absence of stakes in the decision's outcome does not entail indifference towards the decision. A judicial decision is never totally free from involvement of the judge's self-concept. At the very

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180. Note that we are not talking here about different types of judges, but of different types of environments. Thus, we can assume that a given judge will decide and reason differently under the different environmental paradigms, and that every judge would conform, to some degree, to the patterns of decision making and reasoning that typifies each paradigmatic environment.

181. For a discussion of judging in light of a self-concept conflict, see Dan Simon, From Conflict To Closure: The Bi-Directionality of Legal Reasoning ch. 8 (Summer 1997) (unpublished S.J.D. thesis, Harvard Law School) (on file with author) [hereinafter Simon, From Conflict to Closure].

182. *See* THOMAS HOBBES, LEVIATHAN 242 (Dutton 1950) (1651).

183. *See* RICHARD A. POSNER, OVERCOMING LAW 109-10 (1995) [hereinafter POSNER, OVERCOMING LAW].

184. *See id.*

least, the judge has a professional interest in the soundness and effectiveness of the decision rendered.[185] This stake of professionalism is always on a judge's mind, and it affects the way the judge approaches his task and performs his work.[186]

In principle, the psychological architecture that underlies the model of judicial decision making presented here is sufficiently flexible to handle all three types of decisions discussed above. The model can take into account variables such as goal-relevance and personal-relevance; thus, the model is capable of explaining judging that is affected by high stakes. However, in this Article, the model will be developed only as it pertains to neutral broker judging. Analyzing this type of judging is particularly important because its associated decision making processes are least cluttered by extra-legal variables, and the reasons reported in the opinions are relatively reliable. This is judging in its ideal form. Accordingly, the conclusions offered by this psychological model are most general, and its critical insights are most poignant.

This model is based on the assumption that, for the most part, the cases decided at the appellate level present the judge with a real dilemma as to which decision is best supported by the arguments. Simple, easy cases rarely reach the appeals courts; cases decided on appeal usually are close, hard ones.[187] The model, thus, deals with hard cases.[188]

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185. The criteria for determining what amounts to a respectable judicial opinion vary among jurisdictions, panels, types of cases, levels of courts, epochs, and cultures.

186. For example, Judge Abrahamson explains the influence of her own sense of commitment, professionalism, and integrity; her "desire to earn the respect of sibling judges, the bar, and the public; and the authority of appellate courts to reverse our decisions." Abrahamson, *supra* note 65, at 992. As Baum suggests, judge's goals typically include legal accuracy and legal clarity. *See* BAUM, *supra* note 127, ch.2.

187. *See* Frederick Schauer, *Judging in the Corner of the Law*, 61 S. CAL. L. REV. 1717 (1988). Posner reports that most appellate cases are such that the judges can make very little sense of what is going on in the case, because the record is poorly developed. Consequently, the judges have little confidence that they accurately interpreted the case. *See* POSNER, OVERCOMING LAW, *supra* note 183, at 1441; *see also* POSNER, JURIS. PROBLEMS, *supra* note 1, at 78.

188. For a working definition of a hard case, see *infra* note 196.

II. A THEORY OF INFERENCE-BASED DECISION MAKING

A. Psychology of Inference

An inference is typically defined as any cognitive process of reasoning, in which a person goes beyond some known data to generate a new proposition. The result of an inference, then, is the addition of information to the person's mental representation of an issue.[189] An inference begins with *data* of some sort: facts, beliefs, authoritative texts, premises, and the like. Inferences are vectoral in character: they constitute some form of extension of a datum towards some new knowledge, stated in the form of a proposition. The extension is guided by what can be called an *inference-mediator*.[190] The inference-mediator can be one of the familiar forms of logical reasoning, such as deduction (including enthymemes[191]), induction, analogy, and categorization. Or, it can follow less formal modes of reasoning, such as those enumerated in the practical reasoning approach to law.[192] The basic form of an inference is depicted in Figure 1.

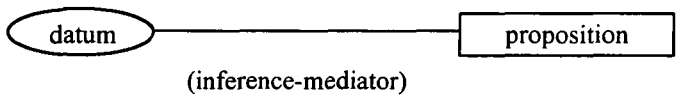

Figure 1. The Morphology of an Inference

189. *See* THE BLACKWELL DICTIONARY OF COGNITIVE PSYCHOLOGY 186 (Michael W. Eysenck ed., 1991); Gilbert Harman, *Rationality*, *in* AN INVITATION TO COGNITIVE SCIENCE: THINKING 175, 184 (Edward E. Smith & Daniel N. Osherson eds., 2d ed. 1995); Edward Smith, *Concepts and Reasoning*, *in* AN INVITATION TO COGNITIVE SCIENCE: THINKING, *supra*, at 3, 6; Pennington & Hastie, *supra* note 133, at 133.

190. The inference-moderators that figure in social domains such as law, are typically much less rigid than the condition-action rules that are central to production systems in artificial intelligence. *See* JOHN H. HOLLAND ET AL., INDUCTION 16 (1986). For a classic exposition of production systems, see ALAN NEWELL & HERBERT A. SIMON, HUMAN PROBLEM SOLVING (1972).

191. An enthymeme is a syllogism in which one of the premises or the conclusion is not stated explicitly. It is commonly used in legal argument.

192. *See infra* note 276.

This basic form of an inference is reminiscent of Stephen Toulmin's layout of arguments.[193] Toulmin proposed that all forms of argument can be schematically understood as containing four major elements: a datum, a proposition, an inference-mediator, and a backing. The inference-mediator is the core of the argument: it explains how you get from the datum to the proposition. The backing states the justification for the mediator. Toulmin offers as an example the following inference: "Harry was born in Bermuda. So presumably, Harry is a British subject." This inference is hollow because we do not know on what it is based. To make a significant and persuasive inference, it must be mediated by some rule-like connector, such as "People born in Bermuda are normally British subjects." For those unfamiliar with this field of English law, this mediator, in turn, must be backed up, or justified, by an agreed upon source. In this example, the backing is an Act of Parliament. In a positivistic world, a valid piece of Parliamentary legislation normally settles the need to search further for the grounding of the inference. Toulmin's example of a layout of an argument is depicted in Figure 2:

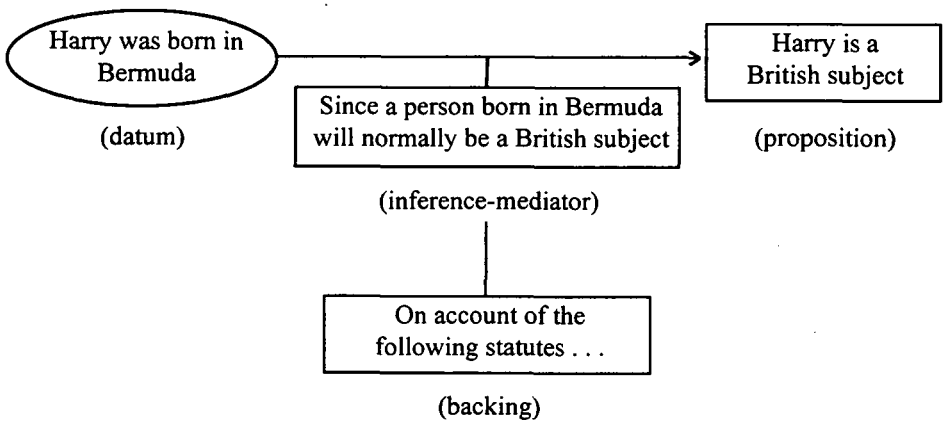

Figure 2. An Example of an Inference
following Toulmin

In many decision tasks, most inferred propositions do not directly influence the decision; rather, they are linked to the final decision by means of another inference, called an *implication*. When a proposition supports a decision, we say that it has a positive implication for it. Each proposition

193. *See* STEPHEN TOULMIN, THE USES OF ARGUMENT 94-145 (1958). The terminology used here differs somewhat from that proposed by Toulmin.

normally supports only one decision alternative; at times, it also has a negative implication for the other alternative.[194] In complex argument, inferences join in chains that ultimately have an implication for the final decision. A chain of two inferences leading from a datum to a decision is depicted in Figure 3.[195]

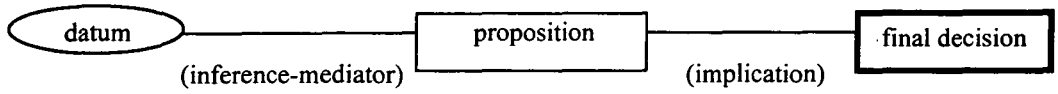

Figure 3. A Chain of Inferences

In the context of complex inference-based decision tasks, such as adjudication, each decision alternative is supported by a number of implications, which in turn are based on a large number of inferences. On occasion, the process of integrating the implications of the propositions occurs naturally and effortlessly. This happens when every one of the inferences, when made in isolation, supports the same decision. We call such tasks *easy cases*. When it comes to *hard cases*, however, things do not fit so neatly. The inferences, when made in isolation, point in different directions. That is, some inferences support one course of action while others support the opposite course, and some inferences might not point clearly in either direction.[196] Easy cases, by nature, do not warrant serious examination. The ones that are of theoretical, as well as practical, interest

194. When an inference has equal implications for competing courses of action it should normally be disregarded. In rational choice theories, this is called the *cancellation principle.*

195. For a similar conception of chains of inferences, see HART, *supra* note 69, at 103-04.

196. This conception of hard cases resembles HENRY J. STEINER, MORAL ARGUMENT AND SOCIAL VISION IN THE COURTS 38 (1987); MELVIN EISENBERG, THE NATURE OF THE COMMON LAW 153 (1988); and COFFIN, *supra* note 7, at 158. As Eskridge and Frickey state, hard cases are those where "the evidence points in different directions." *See* Eskridge & Frickey, *supra* note 54, at 323. Jerome Frank stated that the legal materials may be "exquisitely complicated in many obscure ways." FRANK, COURTS ON TRIAL, *supra* note 6, at 180. Judge Kaufman states: "[A] legal decision, then, is not one but many choices coming together at last in one case; a solution of awesome complexity." Kaufman, *supra* note 65, at 12. *But cf.* DWORKIN, *supra* note 126.

belong to the rather ubiquitous class of cases of mixed implications.[197] What we need then is a theory capable of handling decision making tasks that are based on a multiplicity of contradictory inferences, that is, of making the inferences and integrating them into discrete choices.[198]

B. Theories of Cognitive Consistency

One potentially promising theoretical basis for thought tasks that are based on multiple inference is theories of cognitive consistency, a family of theories that flourished in the 1950s and 1960s. At some stage it was hoped that the structural nature of thought captured by these theories would generate a general "psychology of inference."[199] One of the influential consistency theories was Fritz Heider's *balance theory*,[200] and one of its

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197. For the notion of the contrariness of common knowledge, see MICHAEL BILLIG, ARGUING AND THINKING 202-15 (2d ed. 1996); *see also* RICHARD E. NISBETT & LEE ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT (1980); Tom Pyszczynski & Jeff Greenberg, *Toward an Integration of Cognitive and Motivational Perspectives on Social Inference: A Biased Hypothesis-Testing Model*, *in* 20 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 297, 332 (1987).

198. Consider for example, a person faced with a decision about whether to accept a job offer. Such a decision might be influenced not only by the starting salary, but also by an assessment of the causes of the company's recent performance, the reliability of the employer's assurances of promotion, the likeableness of prospective colleagues, a piece of professional advice regarding advantageous career changes, and the fate of an acquaintance who accepted a similar job offer. To make this decision, a person will have to make a series of inferences, such as identifying the cause of the company's growth, assessing the employer's integrity, evaluating the personality traits of the prospective colleagues, deducing a conclusion from professional advice about career changes, and drawing an analogy from the acquaintance's fate. Deciding which job to take requires both making and integrating these inferences.

199. *See* William McGuire, *Theory of the Structure of Human Thought*, *in* THEORIES OF COGNITIVE CONSISTENCY (Robert P. Abelson et al. eds., 1968). William McGuire explained that he was originally attracted to these theories assuming that the "consistency tendency would provide a convenient tool for mapping the structure and functioning of human thought processes." *Id.* at 140. His belief was that the study of cognitive consistency would open the way to an understanding of what he called the psychology of inference:

> The end was a description of how people think in the broadest sense of the term. By using the assumed psychological necessity for maintaining a highly structured, highly consistent belief system, I hoped to do no less than construct and test a psychology of inference, that is, a depiction of the manner and extent to which one idea leads to another psychologically.

Id. at 140-41.

200. Balance theory, presented by Heider in 1946 and expanded in 1958, describes the features of cognitive structures in which the elements are "perceived as belonging together."

successors, Abelson and Rosenberg's model of Symbolic Psycho-Logic.[201] Another influential theory was Leon Festinger's theory of *cognitive dissonance.*[202] One of the paradigmatic examples of dissonance arousal offered by Festinger was the context of making a decision. Festinger explained that dissonance is aroused by the fact that choosing between

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FRITZ HEIDER, THE PSYCHOLOGY OF INTERPERSONAL RELATIONSHIPS 176 (1958). Every relation within the set is assigned a positive or a negative value. Thus, for example, the sentiment of liking is assigned a positive sign, whereas an adverse association is valued negatively. The dynamic status of sets is determined by an interaction among the values of the relations. The interaction is computed by means of a crude mathematical scheme which compounds the positive and negative values, yielding either a state of balance or one of imbalance. *See* Fritz Heider, *Attitudes and Cognitive Organization*, 21 J. PSYCHOL. 107 (1946).

For notable extensions of Heider's work, see MILTON J. ROSENBERG & ROBERT P. ABELSON, *An Analysis of Affective-Cognitive Consistency*, *in* ATTITUDE ORGANIZATION AND CHANGE 112 (Milton. J. Rosenberg et al. eds., 1960); *see also* Chester Insko, *Balance Theory and Phenomenology*, *in* COGNITIVE RESPONSES IN PERSUASION 309, 323 (Richard E. Petty et al. eds., 1981); Dorwin Cartwright & Frank Harary, *Structural Balance: A Generalization of Heider's Theory*, 63 PSYCHOL. REV. 277, 277-87 (1956); Harry Gollob, *The Subject-Verb-Object Approach to Social Cognition*, 81 PSYCHOL. REV. 286, 287-321 (1974); Milton J. Rosenberg, *Cognitive Structure and Attitudinal Affect*, 53 J. ABNORMAL & SOC. PSYCHOL. 367 (1956).

201. The Symbolic Psycho-Logic model develops balance theory into a more elaborate, though still quite unsophisticated, formalization of the workings of cognitive structures. The model carves out what is called a *conceptual arena*, which includes a series of triadic *sentences*, consisting of actor, means, and ends. These sentences enable incorporating relationships among abstract concepts and complex propositions. *See* Robert P. Abelson & Milton J. Rosenberg, *Symbolic Psycho-Logic: A Model of Attitudinal Cognition*, 3 BEHAV. SCI. 1, 1-13 (1958).

The settlement of a cognitive structure is performed by scanning all relevant relations within the conceptual arena. Each relation is assigned a positive, negative, null, or ambivalent value; the magnitude of the values is fixed. A matrix is then drawn to depict the values of the relations among each and every one of the elements in the structure. The matrix is assessed to determine "the general inner coherence of the block." Rosenberg, *supra* note 179, at 73, 81. A matrix consisting of only positive (and null), or only negative (and null), relations is considered a balanced one; a matrix consisting of mixed values is an unbalanced one.

202. Leon Festinger's cognitive dissonance theory pertains to pairs of cognitive elements where "the obverse of one element would follow from the other." LEON FESTINGER, A THEORY OF COGNITIVE DISSONANCE 13 (1957). Festinger defined "cognitions" broadly: referring to "any knowledge, opinion, or belief about the environment, about oneself, or about one's behavior." *Id.* The magnitude of dissonance is not unitary, but varies in relation to the importance of the elements involved. The stronger the dissonance, the stronger the pressure to reduce it. *Id.* at 16-18.

competing alternative courses of action entails endorsing some unattractive attributes and foregoing some attractive ones.[203]

Consistency theories distinguish between states of cognitive consistency, or coherence, that is where the elements that constitute cognitive structures *go together*, and those of inconsistency, where they do not. The former condition fosters stability and the latter generates cognitive change. At the heart of theories lies the observation that cognitive coherence is a preferred state, whereas incoherence is an adverse one. The theories describe the phenomena associated with states of coherence and incoherence, namely the striving towards and stability of the former, and their cognitive responses to the latter.

The conceptual roots of consistency theories stem from the notion of structural dynamics, an approach that emphasizes the layout of forces within cognitive structures. Each element is taken to have dynamic properties, and the interrelationship amongst the elements determines the forces within the structure. Deeply rooted in Gestaltian theory, the paradigm of structural dynamics posits that for each set of cognitive elements there is a matching arrangement of forces. These arrangements correspond to the degree of coherence among the concepts that constitute the structures. A cognitive set is said to be coherent when all of its constituent elements have the same dynamic character or when all elements of opposite characters are segregated. Coherence holds cognitive structures in position, whereas incoherence generates pressure for change.[204]

The tendency towards coherence echoes the Gestaltian concept of prägnanz. Developed originally to explain visual perception, prägnanz describes structures that have *good forms*, representing ideal states. When structures attain a state of prägnanz, parts of structures follow from one another and complement each other to "inner coherence."[205] Large constructs are "meaningful when concrete mutual dependency obtains

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203. *See generally id.* chs. 2-3.

204. For an excellent review of structural dynamics, consistency theories and their relation to Gestaltian theory, see Stephen J. Read et al., *Connectionism, Parallel Constraint Satisfaction Processes, and Gestalt Principles: (Re)Introducing Cognitive Dynamics to Social Psychology*, 1 PERSONALITY & SOC. PSYCHOL. REV. 26 (1997); *see also* Hazel Markus & Robert B. Jazonc, *The Cognitive Perspective in Social Psychology*, *in* 1 THE HANDBOOK OF SOCIAL PSYCHOLOGY 137, 197-218 (Gardner Lindzey & Elliot Aronson eds., 3d ed. 1985).

205. Wertheimer explains "one has a feeling how successive parts should follow one another; one knows what a 'good continuation' is; how 'inner coherence' is to be achieved, etc.; one recognizes a resultant 'good Gestalt' simply by its own 'inner necessity.'" Max Wertheimer, *Laws in Organization of Perceptual Forms*, *in* A SOURCE BOOK OF GESTALT PSYCHOLOGY 71, 83 (Willis D. Ellis, ed., 1967).

among its parts."[206] The psychological manifestation of this feature of prägnanz is what social psychologists call consistency, consonance, balance, congruence, or coherence.[207] Phenomenological philosopher Edmund Husserl described the same notion as "fusion."[208]

This phenomenon of mutual dependency is closely related to a corollary observation, that people tend to prevent states of cognitive *in*consistency, and when they experience it they engage in efforts to reduce and eliminate it. The most gripping observation made by consistency theories is the tendency to modify the elements that constitute cognitive structures in order to restore consistency. People exercise various means, mostly

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206. Max Wertheimer, *The General Theoretical Situation*, *in* A SOURCE BOOK OF GESTALT PSYCHOLOGY, *supra* note 205, at 12, 16. It appears that the first social psychologist to adopt a Gestaltian approach was Solomon Asch. He stated "[T]here seems also a tendency in judgment to arrive at a consistent, unified view, to get rid of incompatible perspectives (either by objective examination or by distorting the state of affairs)." Solomon Asch, *Studies in the Principles of Judgments and Attitudes: II. Determination of Judgments by Grouped and by Ego Standards*, 12 J. SOC. PSYCHOL. 433, 454 (1940) [hereinafter Asch, *Determination of Judgments*]; *see also* Asch, *Forming Impressions of Personality*, 41 J. ABNORMAL & SOC. PSYCHOL. 258, 283-85 (1946) [hereinafter Asch, *Forming Impressions*].

207. Balance theory's first central postulate is that cognitive sets tend to be arranged in formations that foster "order and coherence." *See* HEIDER, *supra* note 200, at 157. Heider states that the theory's basic assumption is "sentiment relations and unit relations tend toward a balanced state." *Id.* at 201. A state of balance is characterized by some sort of harmony; where the constituent entities and the relations that connect them fit together without stress. In an explicit reference to Gestalt theory, he stated that the criteria for cognitive fit within sets corresponds with the notion of prägnanz and the related notions of similarity, proximity, common fate, good continuation, and past experience. *Id.* at 177. Heider explains that cognitive elements that constitute a structure must have some influence over one another; they are "mutually interdependent." *Id.* at 201.

Heider explained, "[t]hese conceptions, symmetry, consonance, balance, and simplicity, are, of course, implied in that idea with which Gestalt theory started and which always was central to it, namely, the idea of a "good" figure. . . . This model implies a number of different entities with certain properties and standing in certain relations, which make up a constellation of factors tending toward a standard state." Fritz Heider, *The Gestalt Theory of Motivation*, *in* NEBRASKA SYMPOSIUM ON MOTIVATION 145, 168 (M. R. Jones ed., 1960); *see also* Robert P. Abelson, *Psychological Implication*, *in* THEORIES OF COGNITIVE CONSISTENCY, *supra* note 199, at 112; Nehemiah Jordan, *Cognitive Balance as an Aspect of Heider's Cognitive Psychology*, *in* THEORIES OF COGNITIVE CONSISTENCY, *supra* note 199, at 165, 169; Jerome E. Singer, *Motivational for Consistency*, *in* COGNITIVE CONSISTENCY: MOTIVATIONAL ANTECEDENTS AND BEHAVIORAL CONSEQUENTS 47 (Shel Feldman ed., 1966); Percy H. Tannenbaum et al., *Principle of Congruity and Reduction of Persuasion*, 3 J. PERSONALITY SOC. PSYCHOL. 233, 234 (1966); Robert A. Zajonc, *The Concepts of Balance, Congruity, and Dissonance*, 24 PUB. OPINION Q. 280, 282-86 (1960).

208. *See* Gurwitsch, *supra* note 115, at 252.

subconsciously, to alter their cognitions so that they become more mutually consistent and, if inconsistency remains, to segregate the incompatible ones from each other.

This phenomenon of changes in individual elements for the sake of a general structural property is yet another Gestaltian insight. Forces generated at the structural level are applied back, so to speak, towards the individual elements and pressure them to accommodate the global structure. Wertheimer presented a fundamental formula of Gestaltian theory: "There are wholes, the behavior of which is not determined by that of their individual elements, but where the part-processes are themselves determined by the intrinsic nature of the whole."[209]

Joined together, the two tenets of Gestalt theory create a reciprocal relationship between structures and their constitutive elements. As Köhler explained, the topography of a layout determines the overall Gestalt, while the Gestalt affects the topography.[210] This vital point captures the *bi-directional* character of mental workings: the dynamic properties of cognitive elements determine cognitive structures; and the structures, in turn, impose order by restructuring the respective elements. This latter aspect, by which the forces generated across the structures come back to affect the elements which determined them in the first place, is a powerful, though all too often overlooked, phenomenon. It lies at the heart of consistency theories. Dissonance is reduced by way of *spreading apart* the decision alternatives: this typically entails buttressing one alternative by highlighting its positive features and playing down its negative ones, and derogating the competing alternative via emphasizing its negative features and minimizing its positive ones.[211] As Heider explained, imbalance is an unstable state. When structures are pulled in different directions, balance will be restored: "if a balanced state does not exist, then forces toward this state will arise."[212] As recent research demonstrates, bi-directional

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209. *See* Max Wertheimer, *General Problems*, *in* A SOURCE BOOK OF GESTALT PSYCHOLOGY, *supra* note 205, at 2.

210. Wolfgang Köhler, *Physical Gestalten*, *in* A SOURCE BOOK OF GESTALT PSYCHOLOGY, *supra* note 205, at 17, 52.

211. FESTINGER, *supra* note 202, at 264. The dissonance effects on decision-making was empirically proven in a seminal experiment by Jack Brehm. *See* Jack Brehm, *Postdecision Changes in the Desirability of Alternatives*, 52 J. ABNORMAL & SOC. PSYCHOL. 384 (1956).

212. Heider, *supra* note 200, at 201, 207. Following balance and dissonance theories, Abelson and Rosenberg posit that a person experiencing attitudinal imbalance will try to redress the cognitive state by altering the relations, by modifying the elements, or by avoiding the issue. *See* Abelson & Rosenberg, *supra* note 201, at 5.

reasoning also explains some important phenomena involved in inference-based decision making.[213] The actual means by which modification is brought about will be elaborated below.[214]

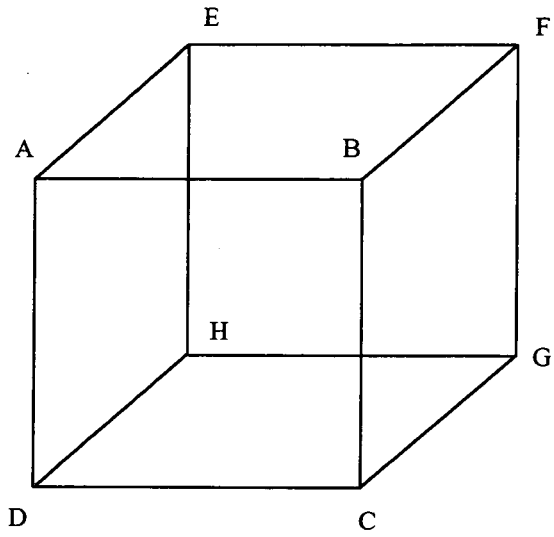

Figure 4. The Necker Cube
Either surface ABCD or surface EFGH can be seen at the front

The organizing principle that permeates the cognitive process can be illustrated by means of the Necker cube. This figure shows a slightly corrected cube shape with a visible depth dimension. The peculiar thing about looking at the cube is that we can notice alternations in its depth dimension. As we change our focus of attention, we see the opposite surfaces change places: at times we see the surface ABCD in the front; other times we see the surface EFGH in the front. The Necker cube demonstrates a feature of human perception.[215] We perceive the cube holistically. Each set of four corners that define either surface are seen interconnectedly: it is

213. *See* Holyoak & Simon, *supra* note 90; Simon et al., *supra* note 90.
214. *See infra* notes 313-42 and accompanying text.
215. *See* RICHARD L. GREGORY, EYE AND BRAIN: THE PSYCHOLOGY OF SEEING 20-22 (4th ed. 1990).

impossible to see corners A, B, C and D on different surfaces. When we see corner A at the front, we also see corners B, C and D at front; and when we see corner E at the front we cannot see corners A, B, C or D at the front.

The Necker cube does not purport to provide any clue as to which alternative hypothesis is correct. The brain has no means of telling whether either one of the surfaces is really at the front or at the back of the cube: it alternates between the competing hypotheses, entertaining one hypothesis at one time and entertaining the other hypothesis at a different time. For our current purposes, we are not concerned with determining the correctness of the competing hypotheses, but rather with observing the organizing principle imposed by the cognitive system on our perception of this image. The subset of corners A, B, C, and D always goes together, as does the subset of corners E, F, G, and H, and the subsets are always opposite to one another. Whenever any one corner shifts, the entire subset shifts with it and the other subset shifts the other way. Each corner can determine the state of the entire structure for a given time, while the other corners are simultaneously determined by the structure.

The Necker cube exemplifies the Gestaltian reciprocity between elements and structures: elements determine the character of the structure, while structures affect the properties of the elements. The theoretical construct underlying consistency theories predicts that cognitive sets will tend to remain stable, and that any shift in the value of an element will influence the entire set to shift in the same direction.[216] That is, each and every concept in a complex thought process has some influence on the conclusion, while each concept might be modified in order to maintain global cognitive coherence throughout the set. It should be noted that, in most thought processes, the relationship between individual concepts and their overall thought structures are rarely as rigid as the relations within the Necker cube.

Unfortunately, cognitive consistency theories failed to develop to their fullest potential and fell short of generating a general psychology of inference. In spite of their valuable Gestaltian insights, balance theory and its progeny remained too formal and too limited to capture complex and abstract thought processes.[217] Cognitive dissonance theory was not much

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216. *See* Thagard, *supra* note 133, at 438-38; *see also* Barbara Spellman & Keith J. Holyoak, *If Saddam Is Hitler Then Who is George Bush? Analogical Mapping Between Systems of Social Roles*, 62 J. PERSONALITY & SOC. PSYCHOL. 913, 916 (1992).

217. Balance theories were limited first by their representation systems. They represent relations between elements, but do not represent the elements themselves. In addition, they represent unitary strengths of relations and thus fail to capture variation in

more instrumental in the development of a psychology of inference. The theory's extensive research program focused almost exclusively on the finding of changes of attitude following counter-attitudinal behavior,[218] while virtually ignoring the decision making paradigm. Although fascinating in its own right, the counter-attitudinal finding fails to capture any form of a cognitively complex thought process.[219] The potential of dissonance theory was curtailed also by its limitation to structures of no more than two

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degrees of strength. The theories also lack sophisticated computational mechanisms capable of evaluating consistency across large numbers of elements, so that the structures are limited to sizes that are too small to stimulate complex thought processes.

218. The finding is that when people are induced to behave in ways that counter their own attitudes, they subsequently change their attitudes in a way that makes the attitudes more consonant with that behavior. For example, dissonance is deemed to arise between the acknowledgment of the behavior ("I just behaved in manner *X*") and the original attitude ("I believe that behavior *X* is wrong"). Dissonance occurs because of the tension between the positive self-conception ("I am a moral person") and the negative cognition ("I just behaved in an immoral way"). Dissonance-reduction is a means of alleviating this tension. By altering the original belief to "I believe that behavior *X* is appropriate," the dissonance is reduced. The alteration of the original attitude is the finding of *attitude change.* This experimental paradigm is called *forced compliance.* For the seminal experiment of forced compliance, see Leon Festinger & Merrill Carlsmith, *Cognitive Consequences of Forced Compliance*, 58 J. ABNORMAL & SOC. PSYCHOL. 203 (1959). Rosenberg and Hovland called this line of research "response consistency." Milton J. Rosenberg & Carl Hovland, *Cognitive, Affective, and Behavioral Components of Attitudes*, *in* ATTITUDE ORGANIZATION AND CHANGE, *supra* note 200, at 112.

219. Over time, dissonance research dampened the enthusiasm of some of the principal proponents of consistency theories. Abelson summarized his frustration: "[T]he long and short of it may be that the dissonance literature chiefly concerns the psychology of what people do to recover from experimentally engineered major embarrassments." Robert P. Abelson, *Whatever Became of Consistency Theory?*, 9 PERSONALITY & SOC. PSYCHOL. BULL. 37, 43 (1983); *see* McGuire, *supra* note 199, at 141; Rosenberg, *supra* note 201, at 101-11; *see also* Albert Pepitone, *Some Conceptual and Empirical Problems of Consistency Models*, *in* COGNITIVE CONSISTENCY: MOTIVATIONAL ANTECEDENTS AND BEHAVIOR CONSEQUENTS, *supra* note 207, at 257, 289; Pyszczynski & Greenberg, *supra* note 197, at 317; Claude Steele, *The Psychology of Self-Affirmation: Sustaining the Integrity of the Self*, 21 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 261, 283 (1988).

The finding of attitude change following counter-attitudinal behavior seems to be more pertinent to the study of how people maintain their self-concept and public image than to an examination of the cognitive processes involved in complex thought tasks. *See, e.g.,* Herbert C. Kelman & Reuben M. Baron, *Inconsistency as a Psychological Signal*, *in* THEORIES OF COGNITIVE CONSISTENCY, *supra* note 199, at 331; Kunda, *supra* note 136, at 492; Barry Schlenker, *Translating Actions Into Attitudes: An Identity-Analytic Approach to the Explanation of Social Conduct*, 15 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 193, 196 (1982); Steele, *supra*, at 280-83.

cognitions.[220] Finally, the theory's decision making paradigm was hampered by Festinger's insistence that dissonance was exclusively a *post-decision* phenomenon; a means of justifying decisions, not of making them.[221]

C. Parallel Constraint Satisfaction Processes

After more than two decades of being sidelined by psychological research, the notions underlying cognitive consistency theories are gradually recapturing the imagination of scientific psychologists.[222] Most beneficial in this regard has been the introduction of the connectionist architecture of representation and the constraint satisfaction mechanism that is taken to model the processes.[223] Connectionist theories use a network-like cognitive architecture to represent thought processes. They model and explain thought processes as interactions across elaborate webs of interrelationships that are formed among multiple cognitive concepts. In connectionist models, the elements that constitute thought processes are not evaluated or processed individually, but are activated in relation to other elements in the network. Each cognitive element exerts influence on all those elements to which it is connected, and is influenced by them in return. Such relationships are said to impose a *constraint* on each of the related elements. In aggregate, a complex

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220. Festinger explained that to determine dissonance one must pluck two cognitions out of their structural environment and ignore their relations with all other elements. The character of the theory was thus forged as a theory of dyads only. FESTINGER, *supra* note 202, at 9, 13.

221. According to research performed by Festinger and his colleagues, prior to making a decision, people are said to collect information and evaluate the alternatives objectively and impartially. It is only *after* a commitment to a decision has been made that dissonance is aroused and reduction methods are employed. *See* LEON FESTINGER, CONFLICT, DECISION, AND DISSONANCE 30-31, 95-96, 152-53, 156. (1964). This aspect of dissonance theory is challenged directly by Simon et al., *supra* note 90.

222. This process has been facilitated by the rapprochement of the cognitive (*cold*) and motivational (*hot*) conceptions of psychology. *See* THE HANDBOOK OF MOTIVATION AND COGNITION (Richard M. Sorrentino & E. Tory Higgins eds., 1986); Kunda, *supra* note 136, at 480; *see also* Smith, *Social Cognitions Contributions to Attribution Theory and Research*, *in* SOCIAL COGNITION: IMPACT ON SOCIAL PSYCHOLOGY 77, 82 (Patricia G. Devine, et al. eds., 1994).

223. *See* Stephen J. Read & Lynn C. Miller, *Dissonance and Balance in Belief Systems: The Promise of Parallel Constraint Satisfaction Processes and Connectionist Modeling Approaches*, *in* BELIEF, REASONING, AND DECISION-MAKING: PSYCHO-LOGIC IN HONOR OF BOB ABELSON 209, 213 (R. C. Schank & E. J. Langer eds., 1994); *see also* Read et al., *supra* note 204.

thought-task can be expressed as a large set of interconnected constraints, through which all elements affect the related elements, and through these constraints they affect and are affected by the entire set.[224] This holistic interaction, which has been labeled a new version of Gestalt, is characterized by its fluidity, flexibility and context-sensitivity.[225] These properties enable the connectionist framework to realistically capture the processes by which people think.

The first cues suggesting the application of a connectionist approach to complex decision making tasks can be found in the writing of William James. James defines complex decisions as states in which: "many objects, purposes, reasons, motives, [are] related to each other, some in a harmonious and some in an antagonistic way."[226] James' description of the task is very much like that of inference-based decision making: "The reinforcing and inhibiting ideas meanwhile are termed the *reasons* or *motives* by which the decision is brought about."[227]

1. Connectionist Representation

In order to perform any mental task, the relevant knowledge, concepts and goals, and the associations among them must first be represented in the mind. The cognitive representation of a thought task is central to an

224. The keystone of connectionist theories is John L. Mclelland & David E. Rumelhart, *An Interactive Activation Model of Context Effects in Letter Perception: Part 1. An Account of Basic Findings*, 88 PSYCHOL. REV. 375 (1981). The theories were further developed in PARALLEL DISTRIBUTED PROCESSING: EXPLORATIONS IN THE MICROSTRUCTURE OF COGNITION (David Rumelhart & John Mclelland eds., 1986). For an introductory text, see William Bechtel & Adele Abrahamsen, CONNECTIONISM AND THE MIND: AN INTRODUCTION TO PARALLEL PROCESSING IN NETWORKS (1991). For a succinct review, see Read et al., *supra* note 204.

225. *See* Stephen Palmer, *Gestalt Psychology Redux*, *in* SPEAKING MINDS: INTERVIEWS WITH TWENTY EMINENT COGNITIVE SCIENTISTS 157 (Peter Baumgartner & Sabine Payr eds., 1995); *see also* Keith Holyoak, *Problem Solving*, *in* AN INVITATION TO COGNITIVE SCIENCE: THINKING 267 (Edward E. Smith & Daniel N. Osherson eds., 1995); Barbara Spellman et al., *A Coherence Model of Cognitive Consistency: Dynamics of Attitude Change During the Persian Gulf War*, 49 J. SOC. ISSUES 147, 163 (1993); Robert Zajonc, *Discussion of Abelson's Talk on Cartwright's Founder's Day*, 9 PERSONALITY & SOC. PSYCHOL. BULL. 55, 56 (1983). For a connectionist-based theory of a personality system, see Walter Mischel & Yuichi Shoda, *A Cognitive-Affective System Theory of Personality: Reconceptualizing Situations, Dispositions, Dynamics, and Invariance in Personality Structure*, 102 PSYCHOL. REV. 246 (1995).

226. WILLIAM JAMES, THE PRINCIPLES OF PSYCHOLOGY 1136 (Frederick H. Hurkhardt et al. eds., Harvard Univ. Press 1981) (1890).

227. *Id.* at 1136.

understanding of the thinking processes. The methodology used in this psychological field is based on a comparison between the representation of a decision task at the outset of the process and its representation at the point of completion. The theory is inferred from the difference between these representations. Thus, the understanding of the cognitive process begins with the representational structure that lays out the cognitive elements and the relations among them.[228]

A connectionist system can be imagined as an intricate *electrical network.* Any piece of knowledge, conceptual or factual, is represented in the network as an element, or node. The principal feature of connectionist representations is the *level of activation* of the nodes. The level of activation stands for the degree of the respective element's acceptability. At any given time, every node has an activation value: that is the degree of acceptability of that concept. Activation can be positive or negative. Activations levels are not binary; they vary in their level of intensity. An element denoting a concept that is held very favorably will have a highly positive activation, and one that is slightly unacceptable will have a weak negative activation.

Elements are connected to other elements by links. Links can be either positive or negative, that is, they denote a relationship in which the connected concepts support or suppress one another. Supportive relations

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228. The representational systems assumed by constraint satisfaction theories are called symbolic networks. *See* Keith J. Holyoak, *Symbolic Connectionism: Toward Third-Generation Theories of Expertise, in* TOWARD A GENERAL THEORY OF EXPERTISE 301 (K. Anders Ericsson & Jacqui Smith eds., 1991). Connectionist networks are neurally inspired, but they are better treated as cognitive, rather than biological, models. *See* Bechtel & Abrahamsen, *supra* note 224, at 56-57. The representation of networks does not define elements at the neuron-level. As Holyoak and Spellman explain, systematic reasoning requires symbolic representations without which links between elements would be incapable of defining meaningful relationships. *See* Keith J. Holyoak & Barbara Spellman, *Thinking*, 44 ANN. REV. OF PSYCHOL. 265, 270-72 (1993). Representations are thus constructed by high-level conceptual building blocks that share some of the symbolic properties of more traditional cognitive architectures. *See* Mischel & Shoda, *supra* note 225, at 253; Read et al., *supra* note 204, at 32. For a general overview of symbolic representations, see PHILIP NICHOLAS JOHNSON-LAIRD, THE COMPUTER AND THE MIND: AN INTRODUCTION TO COGNITIVE SCIENCE ch. 2 (1988). Most connectionist applications in social psychology are symbolic networks. *See, e.g.*, Thagard, *supra* note 133, at 457; *see also, e.g.*, Stephen Read & Amy Marcus-Newhall, *Explanatory Coherence in Social Explanations: A Parallel Distributed Processing Account*, 65 J. PERSONALITY & SOC. PSYCHOL. 429, 445 (1993). For example, the statements "I believe *X*" and "concept *Y* is true" can be represented as individual elements. Symbolic networks thus have the computational advantages of connectionist processes while working on a level of abstraction at which cognitive components are intuitively definable, comprehensible, and manipulable.

are called excitory links; suppressive relations are called inhibitory links. Links also vary in degree: associations between elements can be strong or they can be weak. This variable can be referred to as the *strength* of the link.[229] Every node in a network is connected directly to at least one other node, but usually to no more than a small portion of the network.

An inference, as depicted in Figure 1, is represented by two elements linked to one another through the inference-mediator. An inference is made by one element activating the other, that is, by the proposition represented by the first element generating the proposition represented by the second element. A high activation of the first element and a strong positive link will result in a high activation of the second element, which amounts to a strongly accepted proposition.

The structural representation of cognitive sets is determined foremost by the rich and detailed store of knowledge about our physical, social, and conceptual worlds. For cognitive elements to be assigned a level of acceptability, and to be related meaningfully to other elements, they must be matched with existing knowledge structures pertaining to the subject matter.[230] The subjective background knowledge of the decision maker thus plays a central role in organizing the cognitive elements, determining their initial levels of activation, and identifying their inferential relations.

2. Constraint Satisfaction Mechanism

Connectionist systems operate through cross-activation of the nodes. Each node induces the activation of all other nodes to which it is connected. The induced activation of a pair of elements depends on their relative initial levels of activation and on the strength and sign of the link that connects them. Highly activated elements strongly affect others and are resistant to external influence; weakly activated elements hardly affect others and are sensitive to external activations. The stronger the link between two elements, the more influence they will have on each other. The sign of the relation determines whether the elements will excite or inhibit each other. Two elements will excite each other most when they are similarly activated and connected by a strong positive link. Since each element is typically

229. In connectionist literature, the strength of the link is referred to by the term "weight." I have preferred to use "strength" so as not to confuse it with the jurisprudential metaphor of balancing arguments on a scale.

230. On the significance of background knowledge, see Marvin Minsky, *A Framework for Representing Knowledge*, *in* THE PSYCHOLOGY OF COMPUTER VISION 211 (P. H. Winston ed., 1977).

connected to multiple elements, the activation induced by one element spreads through the adjacent elements to other elements to which it has no direct links. Activations thus permeate the cognitive structure. They spread in parallel throughout the network (or through selected subsets) enabling each and every element to influence, and be influenced by, the other elements in the network.

A model of this elaborate dynamic process has recently been offered in the form of *constraint satisfaction mechanisms*. Connections between elements are seen as constraints: each element constrains other elements and is constrained by them in return. Except in the most obvious of mental tasks, the networks contain both excitory and inhibitory constraints, representing conflict and contradiction among the elements. Constraint satisfaction mechanisms address this kind of incongruity by driving the system towards a state where the constraints will be maximally satisfied. This process occurs over many cycles of activation. At every cycle elements are influenced by other elements, often resulting in changes in the levels of their activation. The altered elements have different levels of activation and interact differently with one another. Every cycle of activation thus results in a somewhat different cognitive structure. Over time, elements that are not supported or are suppressed by other elements degrade and die out, and those that are supported become strengthened.[231]

To integrate the complexity and conflict among constraints, the system must afford some flexibility. Unlike rule-based systems in artificial intelligence, connectionist systems do not contain formal conditions that enable a rule to determine the outcomes of processes independently.[232] Each constraint is a function of the respective element's level of activation and the strength of the link. Not all constraints can be accommodated; some are bound to remain unsatisfied or satisfied only in part. Thus we call the constraints "soft constraints."[233] The concept of soft constraints captures cognitive consistency theories' depiction of consistency-restoration as preferences or tendencies, rather than as strict requirements.[234]

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231. *See* Bechtel & Abrahamsen, *supra* note 224, at 58-60; Keith J. Holyoak & Paul Thagard, *Analogical Mapping by Constraint Satisfaction*, 13 COGNITIVE SCI. 295 (1989).

232. *Cf.* Edwina L. Rissland, *Artificial Intelligence and Law: Stepping Stones to a Model of Legal Reasoning*, 99 YALE L.J. 1957 (1990).

233. *See* Bechtel & Abrahamsen, *supra* note 224, at 58; Holyoak & Spellman, *supra* note 228, at 268; Spellman & Holyoak, *supra* note 216, at 915.

234. *See* FESTINGER, *supra* note 202; HEIDER, *supra* note 200; *see also* Spellman & Holyoak, *supra* note 216, at 926.

3. Coherence-Maximization

A central property of constraint satisfaction mechanisms is that they follow a coherence-maximization function. That is, the multitude of supportive and suppressive constraints will settle in a way that attains the highest possible level of coherence. Thagard distinguishes between two levels of coherence. The first, *local coherence*, refers to isolated mental operations.[235] In inferential tasks, local coherence indicates the soundness of the reasoning of each of the individual inferences. Local coherence is, of course, an important factor in the outcome of decisions, not unlike the dependency of a stew on the quality of its ingredients. More interesting for our purposes is how multiple individual inferences *go with one another*, or *hold together*. The constraint satisfaction mechanism integrates the various constraints and evaluates the system's *global coherence*; this function of coherence echoes the Gestaltian notion of *good form*. Constraint satisfaction mechanisms naturally lead the cognitive system to states in which one of the subsets achieves a high degree of prägnanz. This general tendency towards states of global coherence is most influential in determining the character of complex mental processes.[236]

Following cognitive consistency theories, we observe that when coherence is not spontaneously extant, cognitive work will be performed to attain it. In addition to the *computational* function of determining which set is most coherent, constraint satisfaction mechanisms also *impose* a coherence-maximizing order on the sets. They mediate the coherence seeking function by means of *restructuring* the cognitive elements that constitute the sets. Cognitive forces are generated at the global level that push backwards, so to speak, towards the individual elements. Elements and links are modified so as to form new dynamic relations that will be less constraining, and thus more coherent. This phenomenon of *reversed induction* embodies the Gestaltian tenet: that of global forces modifying the elements and relations to attain good form throughout the structure. A central claim of this Article is that this restructuring is crucial to the attainment of coherence.

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235. For experimentation of local coherence in social cognition, see Read & Marcus-Newhall, *supra* note 228.

236. *See* Thagard, *supra* note 133, at 438; *see also* Pennington & Hastie, *supra* note 189, at 155-57.

4. Constraint Satisfaction-Based Theories

The constraint satisfaction mechanism has been employed to explain the imposition of coherence in various aspects of mental operations. Thagard first applied the model to the construction of scientific and factual explanations.[237] Kintch has demonstrated how coherence within a text affects the comprehension of words.[238] Spellman and Holyoak showed that in making analogies, people have a strong tendency to generate coherent, rather than crossed, mappings.[239] Spellman, Ullman and Holyoak showed how a change in an attitudinal construct affected change in other constructs related to the same global attitudinal system.[240] Pennington and Hastie have shown that global story-like models direct the making of inferences and facilitate the comprehension of evidence in a way that achieves maximal coherence.[241] Miller and Read have used constraint satisfaction models to demonstrate that people generate coherent theories in order to understand other people.[242] They have also applied these models to simulate behavior predicted from balance and cognitive dissonance theories.[243] Schultz and Lepper have developed the Consonance Model, which has successfully simulated various findings of dissonance research.[244] Thagard and Millgram have applied the model to a decisional dilemma involving plans and goals.[245] Kunda and Thagard have applied the constraint satisfaction approach to a body of existing research on impression formation, and have shown how the model can account for much of the extant data.[246]

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237. *See* Thagard, *supra* note 133.

238. *See* Walter Kintsch, *The Role of Knowledge in Discourse Comprehension: A Construction-Integration Model*, 95 PSYCHOL. REV. 163 (1988).

239. Spellman & Holyoak, *supra* note 216.

240. Spellman et al., *supra* note 225.

241. Pennington & Hastie, *supra* note 189.

242. Lynn C. Miller & Stephen J. Read, *On the Coherence of Mental Models of Persons and Relationships: A Knowledge Structure Approach*, *in* COGNITION IN CLOSE RELATIONSHIPS 69 (Garth J. O. Fletcher & Frank D. Fincham eds., 1991); Read & Marcus-Newhall, *supra* note 228; *see* Stephen J. Read, *Constructing Accounts: The Role of Explanatory Coherence*, *in* EXPLAINING ONE'S SELF TO OTHERS: REASON-GIVING IN A SOCIAL CONTEXT 3 (Margaret L. McLaughlin, et al. eds., 1992).

243. Read & Miller, *supra* note 223.

244. Thomas Schultz & Mark Lepper, *Cognitive Dissonance Reduction as Constraint Satisfaction*, 103 PSYCHOL. REV. 219 (1996).

245. *See* Paul Thagard & Elijah Millgram, *Inference to the Best Plan: A Coherence Theory of Decision*, *in* GOAL-DRIVEN LEARNING 439 (A. Ram & D. B. Leake eds., 1995).

246. Ziva Kunda & Paul Thagard, *Forming Impressions from Stereotypes, Traits, and Behaviors: A Parallel Constraint Satisfaction Theory*, 103 PSYCHOL. REV. 284 (1996)

The proposed theory of inference-based decision making is a natural continuation of this line of research. A decision task is represented as a network in which the elements represent facts, authoritative texts, legal concepts and the like, and the links stand for the inferential relationships among them. A crucial feature in the relationship among elements is whether they share the same implications, i.e., whether they support the same decision alternative. A proposition is coherent with all those that support the same outcome and are similarly activated. Propositions are said to be incoherent when they are positively activated and support the opposite decisions, and when they support the same decisions but have opposite activations. Thus, we can identify, merely by observing the arguments, the relationship of a proposition with each and every one of the propositions represented in the network.[247]

The decision tasks that interest us are those in which the networks are fraught with contradictory inferences: that is, elements of the same and of opposite activations are related by a complex of both excitory and inhibitory relations. Such muddled environments contain a large degree of incoherence and, thus, generate extensive dynamic forces of attraction and rejection. The constraint satisfaction mechanism breaks the network down into subsets which have better fits, i.e., subsets containing coherent propositions. Thus, global pressures work back on the inference-mediators and on the elements themselves and change them so that the structure becomes more coherent. The subset that achieves the highest level of coherence is also the highly activated one. This set of highly activated inferences lend strong support to the corresponding decision alternative, and this alternative is then chosen as the winning decision. It is important to remember that the reasons that support the decision were extensively restructured in the process of making the decision. The ways in which the inferences are restructured will be described in the following part.

[hereinafter Kunda & Thagard, *Forming Impressions*]; Paul Thagard & Ziva Kunda, *Making Sense of People: Coherence Mechanisms*, *in* CONNECTIONIST MODELS OF SOCIAL REASONING AND SOCIAL BEHAVIOR (Stephen J. Read & Lynn C. Miller, eds., 1998) [hereinafter Thagard & Kunda, *Making Sense of People*].

247. In practice, all propositions lend support to either one of the outcomes. Thus, there is no place for an indifferent relationship among propositions: they either cohere or incohere with one another. Naturally, propositions that are directly inferred from one another are coherent, and propositions that contradict each other are incoherent. Coherent propositions can be alternatives to one another—each implication supports the joined proposition independently, but they do not fit naturally with each other.

This notion of cognitive change was the principal hypothesis of a recent series of experiments devoted to inference-based decision making.[248] The primary conclusion is that during the course of making a decision, people do indeed change the inferences in a way that maximizes coherence. Further, the decisions are clearly determined by these modified inferences.[249] A second conclusion is that people report surprisingly high levels of confidence that their decisions are correct. This finding is noteworthy in light of the fact that the decision tasks presented to our subjects were laden with conflicting reasons and ambiguous data.[250] Third, when asked to recall their original inferences, people fail to report them correctly; instead, they report inferences that are much closer to their subsequent, modified, inferences. We now proceed to apply the psychological theory to a judicial decision making context.

III. THE PSYCHOLOGICAL MODEL OF JUDICIAL REASONING

Generally speaking, the judicial decision making process is examined here as a transformation of the judge's cognitive representation of the legal question. It traces the process from the initial state, where the legal field is pervaded by profound conflict, to the coherent solution. To depict the initial

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248. *See* Holyoak & Simon, *supra* note 90; Simon et al., *supra* note 90.

249. The testing of this hypothesis was based loosely on a judicial task. The experiment was divided into two principal parts, which were designed to elicit the dilemma-set and the conclusion-set. In the first phase, subjects were presented with various kinds of information and were asked to make inferences on the basis of this information. At this stage, the twelve inferences appeared to be unrelated. In the second phase, subjects were presented with a mock legal case in which 12 arguments were made by the two parties. The subjects were asked to decide the case in favor of either side and to evaluate the arguments made by the parties. The experiment was designed so that the parties' arguments were virtually identical to the inferences which the subjects made in the first phase. The findings showed that in the first decontextualized condition, the subjects' inferences were not related to one another in any meaningful way (only two of the 21 correlations were statistically significant). In contrast, the inferences made at the end of the decision process were highly correlated with one another as well as with the winning decision (20 of the 21 correlations that were hypothesized to be coherent were statistically significant). In other words, the inferences underwent a change towards coherence. It is important to note that the subjects were not required to have any expert legal knowledge.

250. Of the 48 people tested, 75% reported that they had maximal or next-to-maximal confidence that they had reached the best possible decision (ratings of 5 and 4 respectively on a scale of 1 to 5). Only 5% of respondents indicated minimal or next-to-minimal confidence (ratings of 1 and 2 respectively on a scale of 1 to 5). Holyoak & Simon, *supra* note 90; *see also* Simon et al., *supra* note 90.

state of the problem we use a device called *dilemma-sets*, and to represent the final decision we use *conclusion-sets*. These detailed sets depict the hypothesized cognitive representations of the propositions and inferences that constitute the legal question at the respective phases of the process.[251] The dilemma-set provides a reference point for the progression of the representation of the decision. It is not presumed here that a judge actually holds this exact representation in mind at any point in time, but rather that this is the aggregate of all the arguments that are relevant to the case.[252] The conclusion-set depicts the cognitive representation of the question at the point of its resolution.[253] The juxtaposition of these two snapshots will serve as the basis for an explanation of the intervening process.

A. The Ratzlaf *Case*

To demonstrate this analytical approach, we shall apply it to an actual case. I have chosen as an example the case of *Ratzlaf v. United States,* decided by the U.S. Supreme Court in the 1994 term.[254] The case deals with a technical question regarding the interpretation of a federal criminal statute. The case does not appear to bear any of the trademarks of the social visions and ideological commitments that often color Supreme Court decisions. Each of the opinions was joined by Justices normally associated with opposite sides of the traditional ideological divides.[255] The Justices in the *Ratzlaf* case appear to have had low stakes in the outcome of the case, and thus can be assumed to match the metaphor of neutral brokers.

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251. For reasons of convenience, I will use the term "propositions" to refer to all kinds of elements cognitively represented in a legal decision.

252. I have chosen to construct the set by combining the entire range of reasons contained in the opinions. This method is based on the assumption that this combination portrays the dilemma at its fullest. Since all judges hear the parties' arguments and are exposed to all the briefs and circulating draft opinions, every inference is known and available to each one of them. This method comports generally with Judge Coffin's description of his practice: "My first step is to immerse myself in the case totally, drawing first upon everything the parties and the judges below have said." COFFIN, *supra* note 168, at 183. An alternative way to construct the dilemma-sets would be to combine all the points made in all the briefs and in oral arguments. This alternative method has the disadvantage of omitting the reasons originated by the judges or their clerks.

253. The conclusion-set is constructed from the reasons included in the respective opinion. For methodological issues related to this source of data, see *supra* notes 155-74.

254. 510 U.S. 135 (1994).

255. Justice Ginsburg's majority opinion was joined by Justices Stevens, Scalia, Kennedy and Souter. Justice Blackmun's dissent was joined by Chief Justice Rehnquist and Justices O'Connor and Thomas.

The *Ratzlaf* case deals with the interpretation of a federal criminal law that requires banks to file reports of cash transactions exceeding $10,000.[256] The relevant statutory provision, 31 U.S.C. § 5324(a)(3), prohibits "structuring" transactions in order to evade the reporting requirement, and sets forth criminal penalties for people who violate it "willfully."[257] Waldemar Ratzlaf was indebted more than $100,000 to a Reno casino for gambling losses.[258] To repay the debt without having the transaction reported, Ratzlaf went to eleven different banks and purchased from each one a cashier check for just under $10,000.[259] He was charged with structuring transactions with the purpose to evade the banks' reporting obligation.[260] The trial judge instructed the jury that to convict for structuring, it is sufficient that the defendant knew of the bank's reporting obligation and that he structured with the intention of avoiding the reporting requirement.[261] Ratzlaf was convicted, fined and sentenced to prison.[262] The trial judge determined that the prosecution did not have to prove that the defendant knew that structuring in itself was unlawful. The appeal revolved around the statute's "willfulness" requirement. Writing for the Supreme Court, Justice Ginsburg reversed the conviction. The majority concluded that this scienter means something more than regular intent to evade the obligation to report the transaction: it means that in addition to knowledge of the reporting requirement, the accused must also have known that the act of structuring is prohibited.[263] In other words, the Court ruled that the statute requires special knowledge, i.e., knowledge of the illegality of structuring.[264]

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256. *Id.* at 136.
257. *Id.*
258. *Id.* at 137.
259. *Id.*
260. *Id.*
261. *Id.* at 135.
262. *Id.*
263. *Id.* at 136-37.
264. *Id.* For analyses of *Ratzlaf*, see Lindsey H. Simon, *Supreme Court Review: The Supreme Court's Interpretation of the Word "Willful": Ignorance of the Law as an Excuse to Prosecutions for Structuring Currency Transactions,* Ratzlaf v. United States, 85 J. CRIM. L. & CRIMINOLOGY 1161 (1995); Rachael Simonoff, Ratzlaf v. United States: *The Meaning of "Willful" and the Demands of Due Process*, 28 COLUM. J.L. & SOC. PROBS. 397 (1995); David Tolk, Ratzlaf v. United States: *Willful Violation of Antistructuring Law Requires Knowledge that Conduct is Unlawful*, 21 J. CONTEMP. L. 135 (1995). For an institutional approach to the case, see William N. Eskridge & Philip P. Frickey, *Foreword: Law As Equilibrium*, 108 HARV. L. REV. 26 (1994).

1. *Ratzlaf* Case Dilemma-Sets

To construct this case's dilemma-set, we must begin by analyzing the case and identifying all the inferences and propositions that support the alternative decisions. It is important to acknowledge that there is no precise way to break down a case and enumerate all of its components. Alternative ways will always be possible; they should not, however, deviate qualitatively from the sets presented in this Article.

The case revolved around six principal issues: the correct method of interpreting the statutory term "willfulness"; the nefariousness of financial structuring; the legislative intent underlying the statute; the applicability of the "rule of lenity"; the applicability of the principle "ignorance is no defense"; and the effect of the decision on the statute's administrability.[265] Each of these six issues were inferentially related to the decision's outcome, and, thus, they had some implication for the decision. These six implications are said to constitute the infrastructure of the decision-task. The cognitive representation of the case's infrastructure is depicted in Figure 5. We see that every one of these issues contains two opposing propositions, each of which supports either one of the decisions.[266] For example, the proposition "legislator intended special knowledge" has a supportive implication for the decision "special knowledge required for conviction," which amounts to an acquittal; and the proposition "legislator intended regular knowledge" has a supportive implication for the decision "no requirement for special knowledge" which amounts to upholding the conviction. It is important to appreciate the centrality of the two decision alternatives. Although the six issues are weakly related to one another—or not directly related at all—they are all related indirectly through their links with the respective decision. The decision alternatives, then, are the junctures through which the entire network interrelates.

A complete depiction of the dilemma-set in the *Ratzlaf* case is too large to be included in a diagram suited for a law journal. For our current purposes it is sufficient that we focus on a segment of the dilemma-set. Figure 6 is a dilemma-set of just one of the six issues of the case: the legislative intent that was behind the enactment of the statute.

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265. *See Ratzlaf*, 510 U.S. at 140-49.

266. Note that the proposition "the 'nefarious test' is irrelevant here" does not lend direct inferential support to either of the decision's outcomes. This does not mean that this proposition is wholly insignificant; it affects the decision indirectly by inhibiting its corollary proposition, which in turn, has a direct inferential influence on one of the decision alternatives.

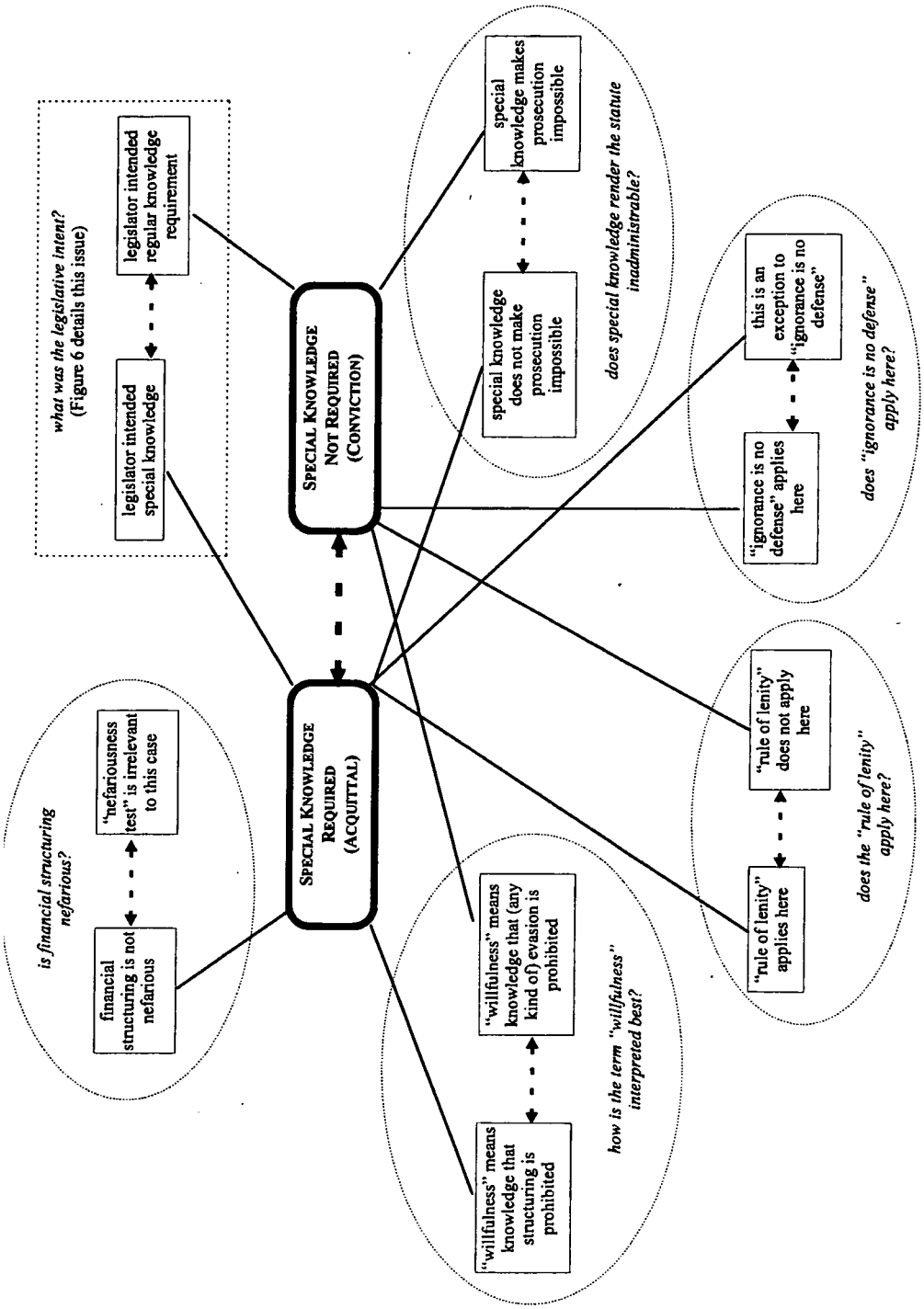

Figure 5. Infrastructure of *Ratzlaf*: the six issues and their competing inferences
(solid lines indicate positive connections; broken lines indicate negative relations)

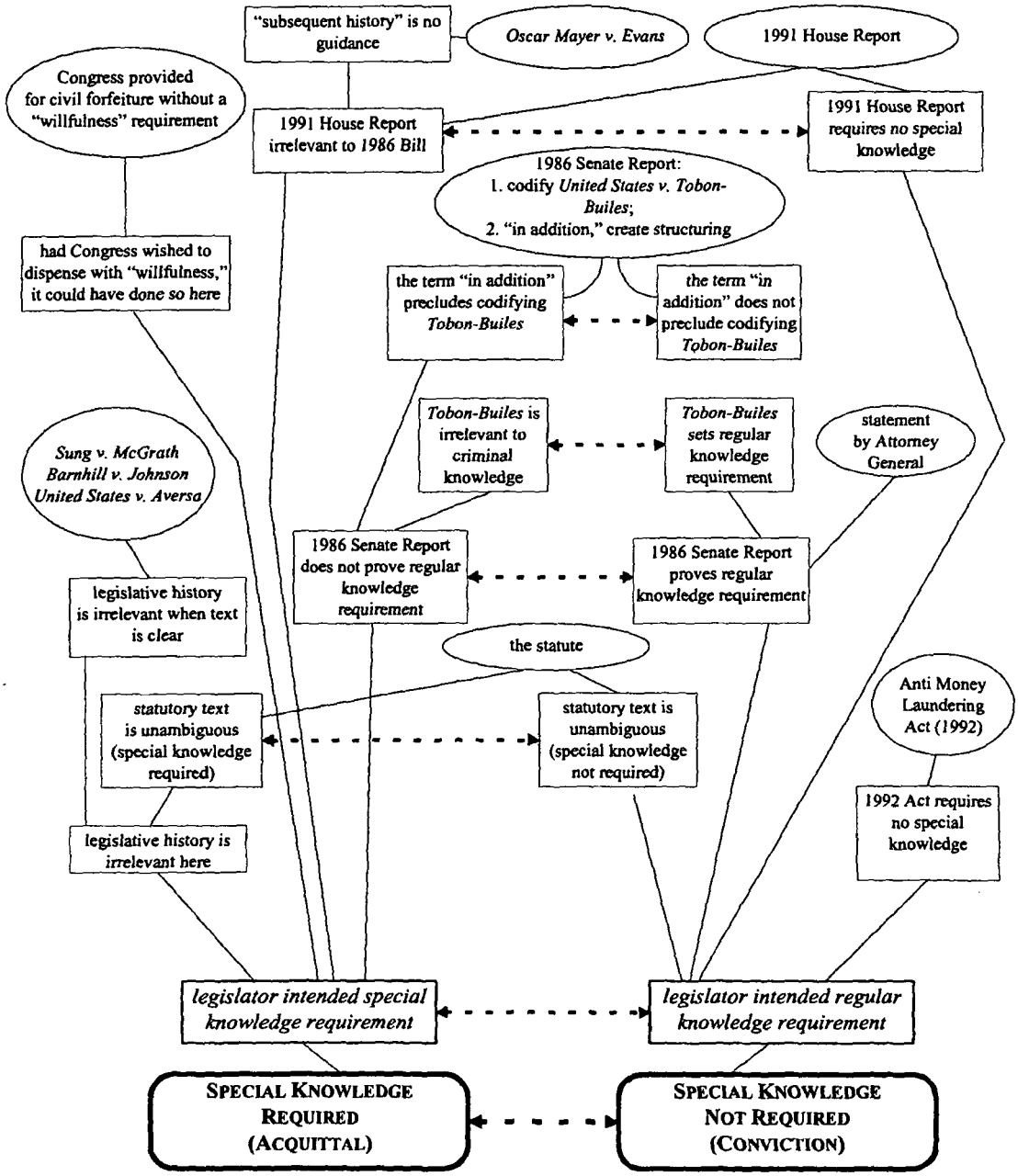

Figure 6. Segment of *Ratzlaf* dilemma-set: the legislative intent
(solid lines indicate positive connections; broken lines indicate negative relations)

It is apparent from this representation (depicted in Figure 6) that neither one of the conclusions is supported by a naturally coherent subset of arguments. Many of the apparently valid propositions are incoherent with one another. The Justices made twenty-three arguments with regard to the legislative intent, all of which originate in ten different authoritative sources.[267] We see that each of the decisions is supported directly by a conclusion that is supported in turn by a substantial number of propositions. These propositions are arranged in complex chains of inferences. The conclusion "legislator intended special knowledge" is supported by four propositions, each of which is supported by a path of inferences, totaling eighteen inferences.[268] The rival conclusion "legislator intended regular knowledge requirement" is supported by four propositions, which are supported by a total of twelve inferences. In other words, of the thirty possible inferences pertaining to the issue of legislative intent, just over half of the inferences implied one conclusion and almost half implied the other. Of the total of eight inference paths, three pairs are directly contradictory to one another (contradictory propositions are denoted graphically by horizontal broken lines).[269] We see then that this segment of the dilemma-set is fraught with complexity and contradiction. This degree of incoherence permeates the entire *Ratzlaf* opinion.

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267. *Ratzlaf*, 510 U.S. at 140-44. All in all, the legislative intent inquiry was based on five precedents, two statutory sources, two congressional reports, and one statement by the Attorney General. *Id.* For reasons of economy, the diagrams present only one ellipse, even when there are multiple sources used for the same proposition. Each of the inferences, however, is counted separately.

268. The inference path that leads to the conclusion "legislative history is irrelevant when text is clear" is, in fact, an alternative to the other three paths all of which lend direct support to the proposition that the legislator intended special knowledge. The reason for this is that the question of legislative intent was the major argument supporting the dissenting opinion. *Ratzlaf*, 510 U.S. at 157-62. In effect, the majority makes a two-part claim to counter the dissenters' argument: first, the legislative intent is irrelevant; second, even if it were relevant, it does not support the dissenting view. *Id.* at 146-49.

269. For example, the proposition "1986 Senate Report proves regular knowledge requirement" and the proposition "1986 Senate Report does not prove regular knowledge requirement" are *contradictory*. The two propositions, "1991 House Report is irrelevant to 1986 Bill" and "1991 House Report requires no special requirement," have no opposing reciprocals. They are merely *competitive*. The remaining two inference paths stand alone, in that they are not matched with any competitive reciprocal. This happens when the other side prefers to ignore the proposition or does not consider it worthy of a response.

2. *Ratzlaf* Case Conclusion-Sets

We now turn to examine how the Justices in *Ratzlaf* saw the case at the point of its resolution. We do so by examining their conclusion-sets. Recall that conclusion-sets stand for the cognitive representation of the case upon the completion of the decision making process. Conclusion-sets are constructed directly from the judicial opinion: every reason stated by a judge or a Justice is depicted as an inference leading to a proposition.

We remain for the time being with the segment of the decision pertaining to legislative intent. Figure 7 depicts the majority's conclusion-set of this segment of the decision. We see that all four inference paths support one conclusion. All eighteen propositions that supported the conclusion "legislator intended special knowledge" in the dilemma-set remain intact,[270] whereas the twelve propositions that originally supported the other conclusion have been excluded, redefined, denied, or reformulated so that they no longer lend any inferential support. The proposition "legislator intended regular knowledge" has become devoid of any inferential support. Thus the conclusion-set represents an unequivocal legislative intent that the statute requires special criminal knowledge.

Recall that Figure 7 depicts only a segment of the entire decision. Figure 8 depicts the majority's conclusion-set of the entire decision. We see that the set consists of sixty-four propositions, which combine into seventeen inference paths, which lead to the six branches of the decision that ultimately support the respective decision. Every one of the sixty-four inferences supports the decisions. All interpretations of authoritative texts, including twenty-three precedents, two statutory sources, and two congressional reports, are mutually coherent. In sum, the majority's conclusion-set is absolutely coherent.

270. Thus, we see in Figure 7 that the majority determined that the statutory text unambiguously requires special knowledge, *see Ratzlaf*, 510 U.S. at 147-48; that had Congress wanted to dispense with the "willfulness" requirement it could have done so, *see id.* at 146; that the 1991 House Report is irrelevant to the 1986 Bill, *see id.* at 148 n.18; that the *Tobon-Builes* precedent is irrelevant since it prohibits evasion only by misstatement (as distinct from structuring), *see id.* at 147-48 n.17; and that the precedent would not matter anyway because the term "in addition" means that the Senate did not intend for the precedent to pertain to the offense of structuring, *see id.* at 147-48.

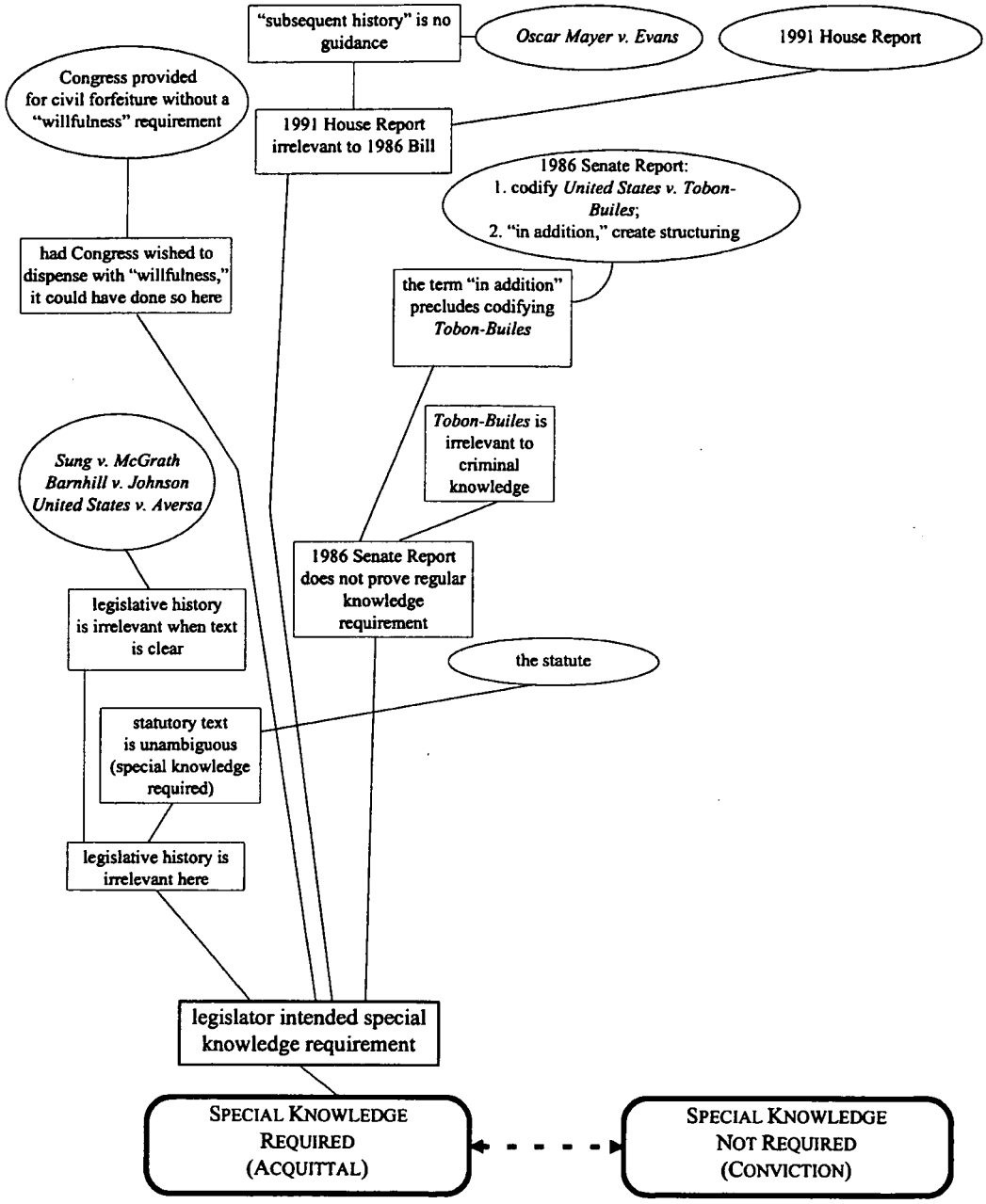

Figure 7. Segment of majority's conclusion-set in *Ratzlaf*: the legislative intent
(solid lines indicate positive connections; broken lines indicate negative relations)

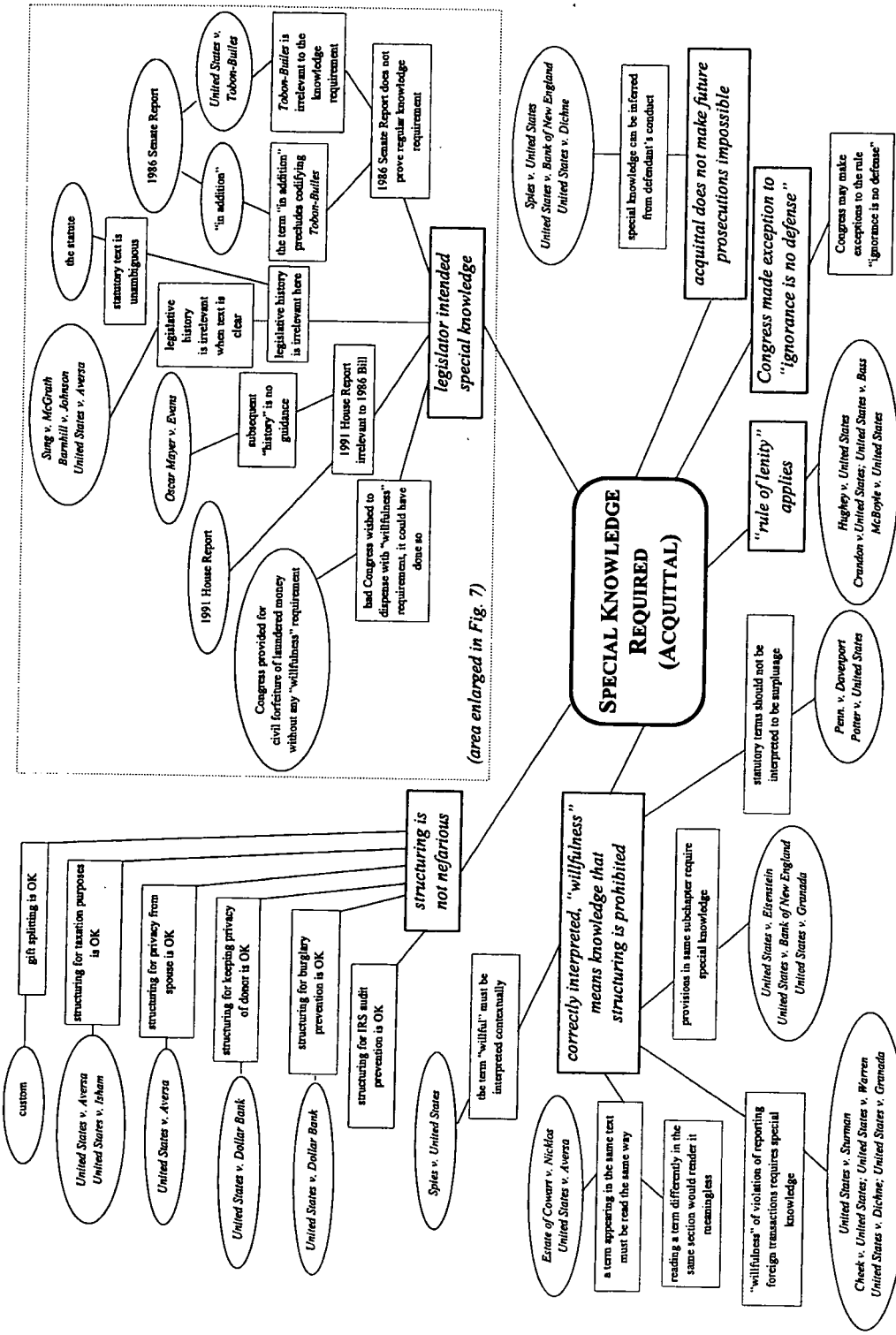

Figure 8. Conclusion-set of the majority in *Ratzlaf* (acquittal)
(all connections are supportive)

The powerful case made for the *Ratzlaf* decision in the majority's opinion becomes all the more intriguing in light of the fact that four Supreme Court dissenters support a very different conclusion-set, as depicted in Figure 9. We see that the dissenters' conclusion-set consists of sixty-one propositions, which combine into seventeen inference paths, which lead to the six branches of the decision that ultimately support the decision to uphold the conviction. Here too, every one of the inferences supported the respective decision. All of the authoritative texts consulted—including the twenty-four precedents, statutory sources, two congressional reports, the ALI's model penal code, and a statement by the Attorney General—yield coherent interpretations.

The degree of discord between the opinions is pervasive, for example, one side employs a textual interpretive theory and the other resorts to a contextual one; one opinion applies the "rule of lenity" and the other adopts its exception, while the latter side applies the rule "ignorance is no defense" and the former adopts its exception. Each opinion reads every one of the common seven precedents differently, and each opinion accuses the other of exceeding the appropriate boundaries of judicial powers. While one opinion insists on the principle of "fair warning,"[271] the other laments that the scheming appellant will be "laughing all the way to the bank."[272] The opinions are not only irreconcilable, but they deny each other's validity outright, most notably in that each opinion insists that there is not even ambiguity in its reading of the law.

We see that the representation of the *Ratzlaf* case evolved dramatically throughout the process. The key to comprehend the judicial practice is to understand how the initial state of conflict (as depicted in Figures 5 and 6) turns into the state of closure (as depicted in Figures 7, 8, and 9); or, in the terms of this psychological model, how the representation of the case evolves from the dilemma-set to the conclusion-sets. An answer to this crucial question can be provided by the constraint satisfaction mechanism.

271. *Ratzlaf*, 510 U.S. at 148 (Ginsburg, J.).
272. *Id.* at 162 (Blackmun, J., dissenting).

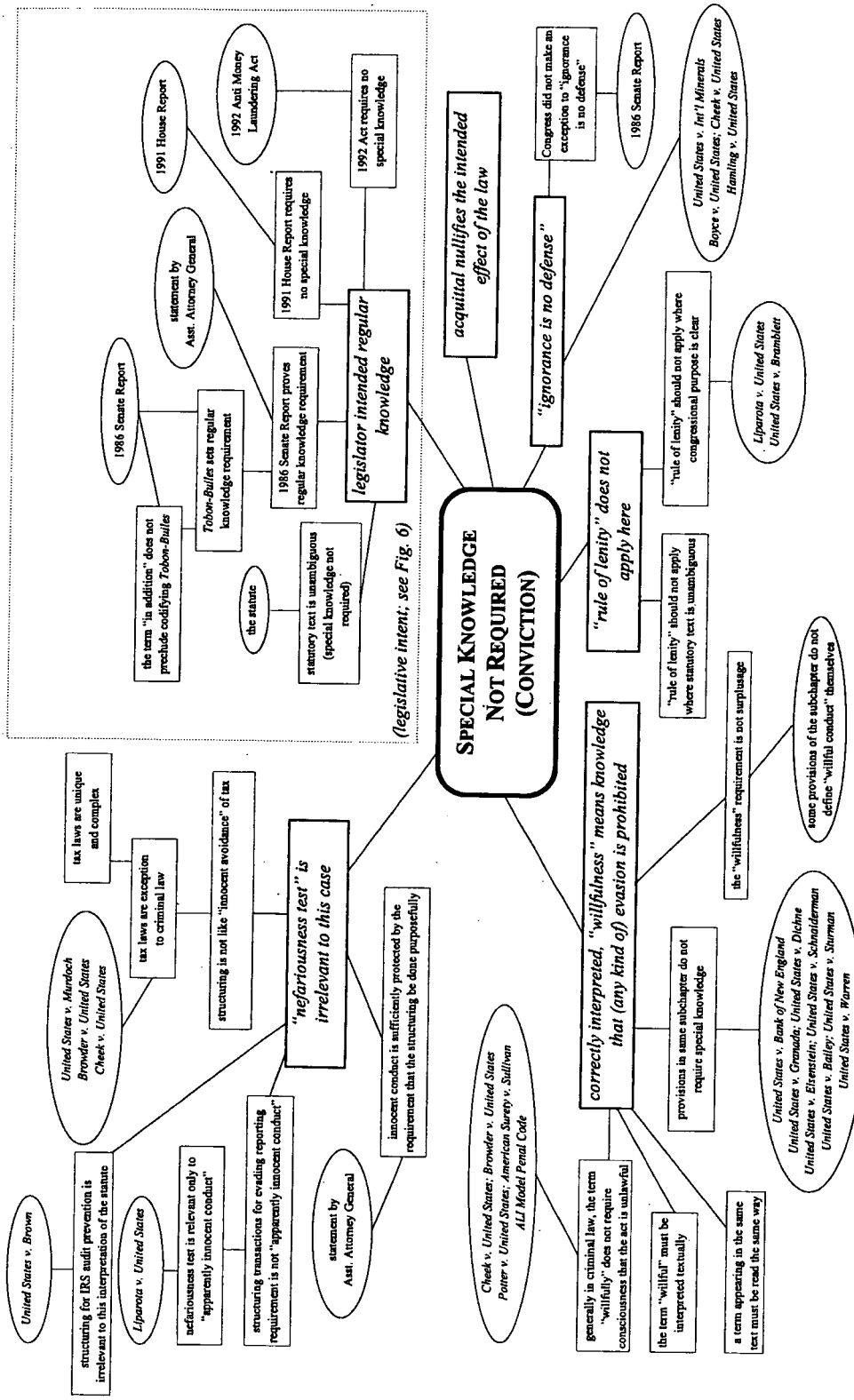

Figure 9. Conclusion-set of the dissent in *Ratzlaf* (conviction)
(all connections are supportive)

B. The Decision Making Process

1. Connectionist Representation of Legal Cases

As a legal case unfolds and the dilemma-sets are developed, it becomes apparent that legal argument is highly interconnected and complex. The pervasiveness of these properties in legal argument was best depicted by Cardozo.[273] It is plainly impossible for such problems to be solved by means of a serial rule-based approach. What is required is a cognitive system that is capable of both representing the interrelationships among the array of propositions, and processing the influence each inferred proposition bears on the task. Connectionist systems are a good way to do so. Connectionist systems provide the holistic tools required to capture the fluidity, flexibility and inter-connectedness of legal argument.[274] This psychological model applies a connectionist based system to represent the judicial dilemma and to process the decision.

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273. The state of intricate contradiction and conflict was central to Cardozo's view of tough legal questions. Cardozo describes the crux of the challenge in judging: "[T]he reconciliation of the irreconcilable, the merger of antithesis, the synthesis of opposites, these are the great problems of the law." CARDOZO, *Paradoxes*, *supra* note 14, at 4. Elsewhere he stated "[D]eep beneath the surface of the legal system, hidden in the structure of the constituent atoms, are these attractions and repulsions, uniting and dissevering as in one unending paradox. 'Fundamental opposites clash and are reconciled.'" *Id.* at 7 (citation omitted). Cardozo also uses the image of "webs" to describe the judicial dilemma. *See* CARDOZO, GROWTH OF THE LAW, *supra* note 45, at 86; *see also id.* at 226 ("Analysis alternates with synthesis; deduction with induction; reason with intuitions. The whole . . . is 'a procedure extremely complex, and full of delicate nuances, all penetrated with casuistry and dialectics . . .'") (citation omitted). Similarly, Judge Coffin describes the initial state of a case as a "tidal pool, recently stirred by the tide. Everything is cloudy and in motion." COFFIN, *supra* note 168, at 183.

274. For general discussions on the applicability of connectionist cognitive architecture to law, see Michael Aikenhead, *The Uses and Abuses of Neural Networks in Law*, 12 COMPUTER & HIGH TECH. L.J. 31 (1996); David R. Warner, Jr., *A Neural Network-Based Law Machine: Initial Steps*, 18 RUTGERS COMPUTER & TECH. L.J. 51 (1992); Wullianallur Raghupathi et al., *Exploring Connectionist Approaches to Legal Decision Making*, 36 BEHAV. SCI. 133 (1991); *see also* Wullianallur Raghupathi et al., *Toward Connectionist Representation of Legal Knowledge*, *in* NEURAL NETWORKS FOR KNOWLEDGE REPRESENTATION AND INFERENCE 269 (Daniel S. Levine & Manuel Aparicio, IV eds., 1994). For a specific application of neural networks to law, see Lothar Phillipps, *Distribution of Damages in Car Accidents Through the Use of Neural Networks*, 13 CARDOZO L. REV. 987 (1991).

As seen in Figures 5 and 6, the connectionist representation resembles an electrical network. Any piece of knowledge, factual or abstract, that is pertinent to the case is represented in the network as an element, or node. Representations of legal cases will thus include facts, authoritative texts, principles of law, considerations of social policy, and the predicted consequences of a decision—both intended and incidental. The principal feature of connectionist processes is the activation of the propositions, where the *level of activation* stands for the degree of the respective proposition's *acceptability*. At any given time, every proposition that is relevant to the decision is activated at some value, positive or negative. An element representing a strongly believed proposition will have a highly positive activation, and one that is mildly unacceptable will have a weakly negative activation.[275]

Each of the represented legal propositions are linked to all propositions with which they share an inferential relation. The links represent the inference-mediators. The inference-mediators used by judges are of a vast variety and they are generally based on informal methods of reasoning. Reasoning tasks such as inferring the mental state of a criminal, drawing similarities between factual patterns, identifying the operative rule in a body of case law, and discerning the meaning of common words have less to do with legal doctrine than they have to do with the judge's social knowledge, ability to make valid attributions, command of the language, and the like. Posner describes practical reasoning as a "grab bag" of methods and tools, that includes "anecdote, introspection, imagination, common sense, empathy, imputation of motives, speaker's authority, metaphor, analogy, precedent, custom, memory, 'experience,' intuition, and induction."[276]

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275. Unfortunately, the diagrams used here to depict representations cannot convey degrees of levels of activation.

276. POSNER, JURIS. PROBLEMS, *supra* note 1, at 73. Posner explains: "[M]iscellaneous and unrigorous it may be, but practical reason is our principal set of tools for answering questions large and small." Posner, *Skepticism*, *supra* note 15, at 838-39. It is noteworthy that Posner leaves no room for deductive reasoning in his bag. *Id.* at 833-35. It seems to me that despite the exaggerated role assigned to deductive reasoning in legal theory, it deserves to be included in the repertoire of legal reasoning. *Cf.* RUGGERO J. ALDISERT, LOGIC FOR LAWYERS: A GUIDE TO CLEAR LEGAL THINKING 45 (3d ed. 1997) ("Deductive reasoning is a mental operation that a student, lawyer or judge must employ every working day.").

Legal arguments are evaluated against a broad array of knowledge structures, including precedents, policies, principles, equity, community morality, doctrinal uniformity, doctrinal stability, historical continuity, social progress, jurisprudential theories, constitutional principles, political ideals, economic theories, custom, logic, administrability, efficacy,

For a cognitive representation to be meaningful, the propositions must be matched with the background knowledge pertaining to the subject matter. A judge's representation of a legal question will be influenced by the judge's background knowledge about the legal, physical, and social world. Thus, the levels of activation of propositions and the strength of inference-mediators will vary from judge to judge.[277] When a judge is biased, that is when her view of a question is overshadowed by some idiosyncratic knowledge or attitude, some part of her representation will be activated excessively.[278] The outer boundaries of a representation are delimited by the nature of the dispute. That is, the competing chains of inferences begin only where the facts, authoritative sources, or propositions are contested by the litigants.[279]

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linguistic principles, common sense, judicial legitimacy, institutional considerations, collegial relations, and more.

277. As Cardozo explains, the question:

> will be shaped for the judge, as it is for the legislator, in accordance with an act of judgment in which many elements cooperate. It will be shaped by his experience of life; his understanding of the prevailing canons of justice and morality; his study of the social sciences; at times, in the end, by his intuition, his guesses, even his ignorance or prejudice.

CARDOZO, GROWTH OF THE LAW, *supra* note 45, at 85-86. In *The Nature of The Judicial Process* he claimed: "[W]e may try to see things as objectively as we please. Nonetheless, we can never see them with any eyes except our own." CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 13.

278. A bias on a network can be described as a fixed activation of a unit that is highly resistant to the rest of the network. When a bias is particularly strong, it can influence the outcome of the entire network. In such cases we say that the decision maker is unrealistic, unfair, or distortive.

279. As Cardozo described:

> In law, as in every other branch of knowledge, the truths given by induction tend to form the premises for new deductions. The lawyers and judges of successive generations do not repeat for themselves the process of verification, any more than most of us repeat the demonstration of the truths of astronomy and physics. A stock of judicial conceptions and formulas is developed, and we take them, so to speak, ready-made.

CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 47-48.

Schauer suggests to view the offering of reasons as taking the decision to its next level of generality. Schauer, *supra* note 51, at 634. He explains: "[J]ust as providing a reason for an outcome ordinarily takes the outcome to a greater level of generality, so too does providing a reason for a reason, or a reason for a rule or principle." *Id.* at 641. In this view, litigants will not proceed infinitely to argue about the reasons for their propositions, because they will reach a level of generality that should be commonly acceptable. As Richard Warner suggests, litigants will argue about a reason as long as it weighs to some degree in favor of making the

It is important to remember the central role played by the units representing the two decision alternatives. Every proposition in the network is related through these central units to every other proposition, no matter how remote. This way, propositions might influence other propositions even when they have no substantive bearing on each other. If two unrelated propositions support the same decision, the activation of the one will spread along the inference chain and ultimately excite the decision, which in turn will spread backwards along a second chain of inferences and activate the second proposition. If, however, the two propositions support different decisions, their cross activation will necessarily run through one decision to the opposite decision and then back along a second chain of inferences to the second proposition. This latter influence will be an inhibitory one.

2. Constraint Satisfaction of Legal Decisions

More and more recent theorizing in cognitive psychology is turning to the analysis of thought processes by means of connectionist systems governed by constraint satisfaction mechanisms. Recall that the activation of proposition will depend on its initial level of activation, on the level of activation of the related propositions, and on the strength and sign of the inference-mediators. Activations spread through the cognitive structure in parallel, enabling each proposition to participate in the holistic effect of the network. Legal arguments, in a connectionist system, are not evaluated or processed individually, but are activated in relation to all the other arguments made in the case. In cognitive terms, this means that each of the legal propositions in the network exerts influence on the decision and on all those ones to which it is inferentially related, and it is influenced by them in return. Such relationships are said to impose a *constraint* on each of the related components. In this post-conceptualist legal world, most legal arguments are open-ended and contestable. These constraints are said to be *soft* ones.[280]

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decision one way or the other. *See* Richard Warner, *Three Theories of Legal Reasoning*, 62 S. CAL. L. REV. 1523, 1525 (1989).

280. For example, a person caught driving an automobile leisurely through a park despite the visible sign "no vehicles in the park" is bound to be found guilty. The application of the rule to this factual situation constitutes a hard constraint, and it is precisely for this reason that cases of this sort are rarely subject to appellate adjudication. However, if that person were caught riding a bicycle rather than driving a car, or were driving a car on the perimeter of the park, or were rushing an injured person through the park to a hospital, the constraint becomes less prohibitive, thus turning into a soft constraint.

At each sequence of cross-activation, the network updates itself and arrives at new levels of activation, which in turn, generate different constraints. Through a series of updating the activations, the network finds its way toward a level of equilibrium at which it settles. Research shows that connectionist systems tend to settle at points at which the participating constraints attain high levels of global coherence. This *coherence maximization* function is a central property of parallel constraint satisfaction processes.

Representations of most legal cases are not spontaneously coherent. We saw, for example, that the representation of the *Ratzlaf* case at its initial state is fraught with contradictory inferences. Coherence can be attained in such conflict-laden networks only by a significant *reconstruction* of the components. That is, the cognitive system literally modifies the judge's initial propositions until the network reaches a coherent state. The reconstruction leads to a *spreading apart* of the alternative decisions and their respective inferences. Ultimately, one subset of the network is positively activated and another is suppressed.

3. Mental Model Building

One of the limitations of theories based on constraint satisfaction mechanisms is that they tend to rely almost exclusively on the final state of the process. Strongly influenced by computerized models, these theories describe the progression of thought processes as simply settling themselves into states of equilibrium.[281] It is, however, common experience that complex thinking tasks can extend over long periods and require substantial intervention and allocation of mental effort.[282] Decision makers, judges included, admit that their tasks are often testing and straining. Judge Coffin, for example, describes the process as an "intense and all-engulfing" experience.[283] While some of the crucial aspects of satisfying the constraints and modifying the cognitive sets are performed without awareness, other parts of the process require conscious involvement. As Abelson noted, complex thought processes should not be taken as

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281. For criticism of this approach, see Joshua Klayman & Robin Hogarth, *Does ECHO Explain Explanation? A Psychological Perspective*, 12 BEHAV. & BRAIN SCI. 478 (1989).

282. *See* Spellman & Holyoak, *supra* note 216, at 927; *see also* IRVING JANIS & LEON MANN, DECISION MAKING: A PSYCHOLOGICAL ANALYSIS OF CONFLICT, CHOICE, AND COMMITMENT (1976).

283. COFFIN, *supra* note 168, at 191.

"instantaneous and total cognitive apprehension," but rather as tasks that require earnest thinkers to involve themselves in the process.[284] It is then necessary to treat decision making as an extended, involving thought process.[285] I propose here to expand on the explanation of constraint satisfaction-driven process by tracing its progression. It must be acknowledged that some aspects of the proposed account are supported by empirical findings, while some are conjectural.

A helpful theoretical device for tracing thought processes is that of a *mental model.* A mental model is a representational construction of symbols, which stands for any conceptual or physical object. Models can be constructed tentatively and can be mentally *run*, or manipulated, to produce some overall cognitive function.[286] By constructing models, one can introduce different combinations and "try them on mentally" before any action must be taken or conclusion need be drawn.[287] In a legal decision task, the models' building blocks are the cognitive representations of the legal propositions, which are kept together through interconnecting inferences. For a model of a legal case to be feasible, it must correspond generally to the decision's infrastructure (see, for example, Figure 5). The mental model at the outset of the case is depicted by means of the dilemma-set, wherein the conclusion-set represents the model at the process' point of culmination.

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284. Abelson, *supra* note 207, at 114-15. McGuire pictures the thinker as "engaged in arranging the best temporary compromise from moment to moment in a rapidly changing situation." McGuire, *supra* note 199, at 154.

285. For notable theories of such models of decision making, see Jerome R. Busemeyer & James T. Townsend, *Decision Field Theory: A Dynamic-Cognitive Approach to Decision Making in an Uncertain Environment*, 100 PSYCHOL. REV. 432 (1993); Ola Svenson, *Differentiation and Consolidation Theory of Human Decision Making: A Frame of Reference for the Study of Pre- and Post-Decision Processes*, 80 ACTA PSYCHOLOGICA 143 (1992) [hereinafter Svenson, *Differentiation and Consolidation Theory*]; *see also* Svenson, *Decision Making and the Search for Fundamental Psychological Regularities: What Can Be Learned from a Process Perspective?*, 65 ORG. BEHAV. & HUM. DECISION PROCESSES 252 (1996) [hereinafter Svenson, *Fundamental Psychological Regularities*].

286. On mental models generally and on their application to logical reasoning, see PHILIP NICHOLAS JOHNSON-LAIRD, MENTAL MODELS (1983). On the use of mental models in the context of decision making, see Reed Hastie, *A Review from a High Place: The Field of Judgment and Decision Making as Revealed in its Current Textbooks*, 2 PSYCHOL. SCI. 135, 137 (1991); *see also* Raanan Lipshitz & Orit Ben Shaul, *Schemata and Mental Models in Recognition-Primed Decision Making*, *in* NATURALISTIC DECISION MAKING 293, 298 (Caroline E. Zsambok & Gary Klein eds., 1997).

287. JANIS & MANN, *supra* note 282, at 174.

It is proposed here that mental models of complex decision tasks are constructed through a sequential process of structuring and restructuring. The process is a flexible and dynamic one. Propositions from the available repertoire are repeatedly activated in a variety of combinations to construct new models. The cross activations of each model settle at a different state of constraint satisfaction, and thus result in different levels of activations of the embedded propositions. Each model is tested for coherence. A model that fails to increase coherence is rejected, and one that is judged to be coherent is retained and revised in subsequent cycles of activation. Smaller models can be activated either separately or in combination to construct larger ones. In most legal decisions, the models will probably be too big to be activated all at once.[288] The generation of models is not random. The process is governed by the conventions of the discipline, by the judge's doctrinal or interpretive commitments, and by an economizing function, and will thus focus mainly on propositions and inferences that are expected to advance the model towards the successful completion of the task.[289] The process will be most efficient when the decision maker is an expert.[290] The overall process progresses towards the desired state of settled constraints, that is, the model approximates its highest attainable level of coherence.[291]

Recall that a central property of connectionist networks is that propositions excite all other propositions with which they cohere and inhibit the ones of opposite valence. The stronger the activation of a proposition and the more times it is activated, the more pronounced its impact on the rest of the model. As the sequence progresses, the model gradually separates into two disparately activated subsets, each corresponding to one of the decision alternatives. Ultimately, the network becomes distinctly lopsided: one subset is strongly activated and other one inhibited. Incapable of reinforcing one another or of activating their respective decision, the inhibited propositions degrade to insignificance. The lopsided model

288. As McGuire suggested, only a portion of the complex field of forces can be salient at any moment. McGuire, *supra* note 199, at 154. James explains that because of the oscillations of our attention, "certain parts stand out more or less sharply at one moment in the foreground, and at another moment other parts." JAMES, *supra* note 226. It can thus be assumed that models are broken down into smaller models, which are *run* separately, and then are combined into larger ones.

289. To examine the instrumentality of the overall process in problem solving theory, see NEWELL & SIMON, *supra* note 190, at 826.

290. *See* Blasi, *supra* note 149, at 342-48.

291. Not every phase necessarily increases the models' level of coherence: some activations might fail to achieve coherence, thus signaling to the system to try alternative constructions. Other activations might be intended to disconfirm a particular combination.

embodies Festinger's image of *spreading apart* the decision alternatives.[292] The state in which positively related propositions are activated is described as coherence; hence we say that the construction of the mental model follows a coherence-maximizing principle.

4. Multiple Model Construction

Thus far, I have described a process of constructing a mental model, leading to the spreading apart of the two decision alternatives. The problem with this description is that it pertains to a single model, in which only one decision alternative is developed to its highest level of activation. Substantial decision tasks, however, contain valid propositions supporting both decision alternatives. Omitting one of the available options from consideration is generally considered a basic defect of thought processes[293] and, in the legal context, is considered an obvious exemplar of bad judging. A decision making process must entail a contemporaneous evaluation and comparison of both alternatives. The final choice must be based on this comparison.

A likely thesis is that the process is performed by means of constructing *two competing models*.[294] I suggest that the judge develops two models, each corresponding to one of the decision alternatives, and that each one is activated alternatively.[295] Throughout the process, the judge's attention oscillates between the models: as described by William James, certain parts of a problem "stand out more or less sharply at one moment in the foreground, and at another moment other parts, in consequence of the oscillation of our attention."[296] The judge's focus of attention sails through

292. *See* FESTINGER, *supra* note 202, at 44-45. The image of spreading apart the alternatives is central also to Svenson's theory of decision making. *See* Svenson, *Differentiation and Consolidation Theory*, *supra* note 285; Svenson, *Fundamental Psychological Regularities*, *supra* note 285.

293. *See* JONATHAN BARON, THINKING AND DECIDING ch. 9 (2d ed. 1994).

294. Recall that it is assumed that the judge is considering only two alternatives.

295. Recent research suggests a dynamic model of thinking in a variety of social judgment tasks that oscillates between competing hypotheses. *See* Robin R. Vallacher et al., *Intrinsic Dynamics of Social Judgment*, 67 J. PERSONALITY & SOC. PSYCHOL. 20 (1994); *see also* S. A. Kaplowitz & E. L. Fink, *Cybernetics of Attitudes and Decisions*, *in* DYNAMIC PATTERNS IN COMMUNICATION PROCESSES 277 (James H. Watt & C. Arthur VanLear eds., 1996).

296. *See* JAMES, *supra* note 226, at 1136; *see also* Busemeyer & Townsend, *supra* note 285, at 439; Michael R. P. Dougherty et al., *The Role of Mental Simulation in Judgments of Likelihood*, 70 ORG. BEHAV. & HUM. DECISION PROCESSES 135 (1997). James' characterization of the thought process was incorporated by Michael Billig into his rhetorical

the structure, selecting different elements to be activated.[297] Each model is activated in turn so as to advance it to its most coherent state. The more times a proposition will be activated with similar-signed elements, the higher its activation.[298] Thus, the way the judge directs his attention bears an important influence on the construction of the models. As long as the judge is undecided, the cognitive system continues to activate both models alternatively.[299]

According to this thesis, as the process progresses, two mental models evolve, within each of which the two subsets become spread apart. That is, each model contains a lopsided representation of two subsets, one highly activated and one suppressed; the two models are virtually mirror images of one another. At any given moment, the judge's view of the case will be determined by whichever model is actively represented. As the judge focuses his attention on one model, the lopsided arrangement of reasons overwhelmingly support one decision. But as the other model becomes salient, the opposite decision seems to be the only feasible one. Alternating between the models has a dramatic effect in that the entire set of propositions switches *en bloc*—very much like the Necker cube effect. With every shift of attention, virtually every disputed point changes from one extreme to the other. It is impossible to determine how many times a judge redirects his attention in the course of deciding a case, though for diligent judges working on hard cases, the number is probably very large.

5. The Point of the Choice

For the process to reach its conclusion it needs some sort of *stopping criterion*, i.e., a way of determining when the process that leads to her

approach to thinking. Billig describes the rhetorical conception of deliberation "[A]s the mind oscillates between alternatives, it successively champions the case for one decision or another, changing its set of justifications and criticisms." BILLIG, *supra* note 197, at 144. Thought processes are likened to dialogue. We think to ourselves, presenting both sides of the argument. When we think, it is if we are addressing someone else, and we divide ourselves so that we become our own critics and admirers. Good thought processes, in this view, are contingent on "rigorous cross examination." *See id.* at 140-47. The notion of running and evaluating alternative models is implied also in the models of Janis & Mann, *supra* note 282, at 174, and Pennington & Hastie, *supra* note 189, at 134.

297. The direction of attention through large representations has also been described by means of a "spotlight" metaphor. *See* Michael I. Posner et al., *Attention and Detection of Signals*, 109 J. EXPERIMENTAL PSYCHOL. 160 (1980).

298. *See* Miller & Read, *supra* note 242, at 82.

299. James suggested that this fluctuating equilibrium continues until the decision is cast. JAMES, *supra* note 226, at 1137.

decision is complete. I propose that the stopping point will be related to the level of activation and the degree of coherence of the competing models. This emphasis on the level of activation and coherence is unique to connectionist-based constraint-satisfaction models.[300] As discussed below, the degree of coherence attained in decision tasks is far from uniform. The stopping-criteria people use are influenced by a variety of factors, including the decision maker's role-conception, the social context, the nature of the specific case, and that individual's personality traits.

When the judge has ample resources (cognitive availability, time, and the like), she is expected to develop the models until they cannot be extended any further.[301] Once having reached the maximal limits, she would normally choose the model that attains the *highest level* of activation.[302] Alternatively, she might choose the model that bears closer *resemblance to some ideal model*, such as an important precedent or a paradigmatic doctrinal scheme. It would appear, however, that given the work load of judges, they often make their decisions before developing the models to their fullest. A judge might elect to stop the process as soon as the level of either model passes a mere sufficiency level. This is what Herbert Simon called *satisficing*.[303] A judge might follow a *minimal-gap* approach. That is, she develops the models until the difference in levels of activations of the models reaches a certain level. A judge might choose the model according to a *disjunctive rule* in which a singularly significant aspect reaches a higher

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300. Rule-based models resort to more rigid and formal rules of dominance. *Compare supra* notes 273-79 and accompanying text (connectionist notion), *with* GEORGE A. MILLER ET AL., PLANS AND THE STRUCTURE OF BEHAVIOR (1960), Gad Saad & J. Edward Russo, *Stopping Criteria in Sequential Choice*, 67 ORG. BEHAV. & HUM. DECISION PROCESSES 258, 264 (1996), *and* Harry Montgomery, *Decision Rules and the Search for a Dominant Structure: Towards a Process Model of Decision Making*, *in* ANALYZING AND AIDING DECISION PROCESSES 343 (P.C. Humphreys et al. eds., 1983).

301. Models cannot be extended any further, for example, when the models reach the limits of plausibility or conventions of legal argument, and when the judge runs out of resources to prolong the process. On the limits of activation, see *infra* notes 376-85 and accompanying text (discussing the limits of cognitive change).

302. This criterion resembles the rule of dominance as used in decision theory. *See* Montgomery, *supra* note 300, at 345.

303. *See* HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR: A STUDY OF DECISION-MAKING PROCESSES IN ADMINISTRATIVE ORGANIZATION 240-44 (3d ed. 1976). Satisficing might be useful, for example, when a judge is asked to join a decision of a colleague and approaches the decision with the only objective of making sure that the decision is acceptable—not necessarily the best available decision. Satisficing is one of the quickest ways to dispose of decisions without the risk of making patently bad decisions. Thus, a judge who is especially pressed for time might adopt this method.

level of activation, or an *eliminative* approach by which a model is eliminated because a particular argument failed to reach a certain level.[304]

It should be noted that there is some evidence that in making complicated decisions, people take only a limited number of factors into serious consideration. This reliance on the few relevant factors has been called the *core attributes heuristic*.[305] It follows that when making the final choice, the judge does not examine the level of activation of the competing models in their entirety, but only subsets of arguments that are particularly important to her.[306]

6. The Effects of the Choice

Once the judge approaches the point of choice, the oscillation between the models ceases and—with the exception of regret, counterfactual thinking and the like—one of the two models becomes activated exclusively. A central feature of this psychological approach is that the judicial decision is strongly influenced by the judge's cognitive state at the moment of decision, i.e., by the mental model that is salient at the end of the process.[307] The representation of the legal issue at this point is lopsided. A coherent set of strongly accepted arguments supports the one decision while the alternative course of action is barely supported at all. It is at this point that the *coherence bias* comes into effect and offers a key to the jurisprudential questions with which I began this Article.

The decision is derived, virtually subsumed, from the uniform set of arguments. The choice flows naturally and effortlessly. Since the arguments

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304. These criteria are reminiscent of the lexicographic rule and the elimination by aspects rule. *See* Montgomery, *supra* note 300, at 345.

305. Saad and Russo have demonstrated that, when provided with information of twenty-five attributes described as relevant to the decision task, most subjects relied mainly on cores consisting of only three to five attributes. *See* Saad & Russo, *supra* note 300. A similar finding was made in a field survey of sentencing decisions. When interviewed, judges reported that they take into consideration a broad variety of factors, although close analysis of their actual decisions showed that they mainly relied on just three factors. *See* VLADIMIR J. KONENCI & EBBE B. EBBESEN, *An Analysis of the Sentencing System*, *in* THE CRIMINAL JUSTICE SYSTEM: A SOCIAL-PSYCHOLOGICAL ANALYSIS 293 (Vladimir J. Konecni & Ebbe B. Ebbesen eds., 1982).

306. *See infra* note 523.

307. William James offers the idea that the decision derives directly from the mental model that is active at the moment of the decision. *See* JAMES, *supra* note 226, at 1137. A derivation of this idea is a central idea in Pennington and Hastie's story model. *See* Pennington & Hastie, *Explanation-Based Decision Making*, *supra* note 133; Pennington & Hastie, *The Story Model*, *supra* note 133.

are perceived to be stacked up on one side, the judge is likely to feel compelled to decide accordingly. In other words, she experiences constraint. This sense of unequivocal support for the one decision generates a sense of inevitability, of singular correctness.[308] And with no viable set of alternative arguments to challenge the conclusion, the judge feels confident in her decision. The mental state of coherence then colors the written opinion. In effect, the opinions read as they do because at the moment the judge adopts one of two lopsided models, she ceases to think in the mode of neutral broker deliberation and instead begins to think more like a single-minded advocate.[309]

It should be remembered that the process is not necessarily brought to a halt when the judge has chosen which alternative wins. The choice is followed by a process of *rationalization*, which serves both to consolidate the judge's own view of the issue and to enhance its public acceptance. The latter form of rationalization is known as "padding." Rationalization entails seeking more information and authoritative texts to provide additional support to their decision, thus resulting in opinions that appear even more coherent, unavoidable, and singularly correct. Rationalization might be particularly pronounced when the judge feels that the decision is not sufficiently sound, or when she perceives that the respective audiences expect a higher level of conviction than she does herself.

Recall that prior to the moment of choice, the judge entertained two alternating mental models. The existence of two competing models is what causes the sense of tension and indecision that accompanies some decisions until their completion.[310] The judge's ultimate choice is not between one solid mental model and another frivolous one, but between two similarly

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308. Psychological research suggests that once people construct a theory on the basis of inferences they make, they tend to hold on to their theories persistently. *See* Craig A. Anderson et al., *Perseverance of Social Theories: The Role of Explanation in the Persistence of Discredited Information*, 39 J. PERSONALITY & SOC. PSYCHOL. 1037 (1980).

309. In Michael Billig's conception, the thinking person is depicted by means of the *oratorical* metaphor. *See* BILLIG, *supra* note 197 and accompanying text (discussing the concept of thinking as dialogue). This image of the rhetorician is divided into two sequential stages: when the person deliberates, her thinking resembles an argument between two contesting orators embodied in the same person. Having decided on a position, the person evolves from deliberator to advocate. She is no longer pulled by two contrary positions, but advocates exclusively the strengths of the chosen stance. *See* BILLIG, *supra* note 197, at 186-87.

310. On the state of conflict that accompanies decision making, see JANIS & MANN, *supra* note 282. On occasion, conflicts and tension persist after the decision has been completed. This is called regret.

forceful models. The fact that both models are lopsided enables the judge to produce an apparently good set of reasons, regardless of which decision she makes. The existence of two available models might explain the fact that judges sometimes switch their votes at the last minute.[311] Had only one mental model been available, judges could not conceivably choose the decision alternative that is supported by the suppressed subset of inhibited arguments over the alternative supported by the highly activated ones. Thus, switches between alternatives would necessarily be irrational or unprincipled. Furthermore, with only one available mental model, switching one's decision would require reconsidering and overturning all, or almost all, of the arguments. That would be a difficult and demanding task, and it is hard to imagine how it would yield such high levels of closure. However, when the judge has at her disposal two fully developed and similarly appealing mental models, any slight change in the evaluation of one of the arguments can potentially reverse the models' relative favorability. Recall that in a mature model, the propositions are already configured coherently so that they support the respective decision. As with switching attention between the models throughout the process, when the judge switches her preference, the new model brings with it the entire network of settled constraints.

It is important to note that the competing models alternate in the mind of the judge. They are not activated simultaneously. This way, the deep discrepancy between them is never brought to a head. This segregation is also manifested in the judicial opinion. The opinion embodies the chosen mental model, but it ignores the other half of the outcome of the process. While the winning model is reported, the rejected model is hidden. Hence the one-sidedness of the judicial opinion.

7. The Restructuring of Legal Materials

The discussion so far has focused on the global aspects of the judicial thought process. To gain a fuller understanding of the process, we must know more about the ways in which the legal materials are changed, or, in Judge Wald's words, how the judge "shapes her raw material."[312] This examination brings us closer to the mechanics of legal argument. In

311. On the phenomenon of switching votes, see BERNARD SCHWARTZ, DECISION: HOW THE SUPREME COURT DECIDES CASES chs. 8, 9 (1996); BAUM, *supra* note 127, at 105-09. Switching decisions can be regarded as an instance of "conversion experiences." *See* Read et al., *supra* note 204, at 46.

312. Wald, *Rhetoric of Results*, *supra* note 65, at 1377.

cognitive terms, this means that we examine the ways by which propositions and inferences are transformed, and, as a consequence, the decision alternatives are spread apart. The variety of modes of restructuring can be roughly divided into three general types: *gate keeping*, *bolstering*, and *rule selecting*.[313] It should be stated at the outset that these modes do not lend themselves to a systematic taxonomy. The list is neither comprehensive nor exclusive.

(a) Gate Keeping

The first of the proposed model's restructuring modes, gate keeping, concerns the regulation of propositions into and out of the network. It governs which propositions and inferences will be included in the conceptual boundary of the decision and which will not. Naturally, the addition or subtraction of a proposition can potentially change the set's overall character. The rationale is straightforward: propositions that are included in the network participate in its activation, and those that are not represented in the sets, do not affect the process.[314] In cognitive consistency

313. This trichotomy corresponds generally with most typologies offered by cognitive consistency theorists. Festinger spoke of changing elements, adding new elements, and decreasing the importance of the dissonant elements. FESTINGER, *supra* note 202, at 264. Heider posited changing the dynamic character of elements, changing the unit relations, performing cognitive reorganization, and differentiating the evaluation of the elements. *See* Heider, *Attitudes and Cognitive Organization*, *supra* note 200, at 108; *see also* HEIDER, THE PSYCHOLOGY OF INTERPERSONAL RELATIONSHIPS, *supra* note 200, at 209. Abelson and Rosenberg suggested changing the elements, changing the relations, or avoiding the conflict. *See* Abelson & Rosenberg, *supra* note 201, at 5. Similar suggestions are included in Tesser's theory of self-generated attitude change, which involves adding and generating new cognitions, blocking, suppressing and losing inconsistent cognitions, and shading the meaning or reinterpreting cognitions. *See* Abraham Tesser, *Self-Generated Attitude Change*, 10 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 289, 313 (1978). Decision theorist Harry Montgomery has suggested a typology of de-emphasizing, bolstering, canceling, and collapsing. *See* Montgomery, *supra* note 300, at 360-365. Overall, the specific modes mentioned here follow the work of Herbert Kelman and Reuben Baron entitled *Determinants of Modes of Resolving Inconsistency Dilemmas: A Functional Analysis*, *in* THEORIES OF COGNITIVE CONSISTENCY, *supra* note 199, at 670; *see also* JANIS & MANN, *supra* note 282; Robert P. Abelson, *Modes of Resolution of Belief Dilemmas*, 3 CONFLICT RESOL. 343, 346-48 (1959).

314. This latter point is manifested by Francis Bacon's story of a person who was shown temple paintings of people who had survived shipwrecks after having "paid their vows" to the gods. The person then asked, "but where are they painted that were drowned, after their vows?" Charles Lord et al., *Considering the Opposite: A Corrective Strategy for*

theories we find that including propositions is a means of increasing coherence;[315] and that excluding propositions is employed to reduce incoherence.[316] Inclusion and exclusion are familiar concepts in argumentation theory,[317] as well as in phenomenological philosophy.[318]

Gate keeping can be performed at the level of individual propositions or at more general levels. Particular gate keeping takes place at the level of selective presentation of the case's facts, at adopting or ignoring an argument or a single chain of arguments. At the general level, gate keeping is typically performed by *framing* the case in some particular fashion. The way a legal question is framed often influences the overall debate.

Social Judgment, 47 J. PERSONALITY & SOC. PSYCHOL. 1231, 1239 (1984) (quoting Francis Bacon).

315. Adding consonant elements was one of the central dissonance reduction measures suggested by Festinger. *See* FESTINGER, *supra* note 202, at 264. As Abelson notes, introducing consistent data into the model has an effect of *drowning out* the inconsistent ones. *See* Abelson, *supra* note 313, at 345. Abelson gives the example of a smoker who, faced with knowledge about the dangers of smoking, states that it is enjoyable, good for the nerves and socially desirable. *Id.* Pennington and Hastie suggest that in courtroom story construction, jurors not only incorporate the events and data provided by the evidence, they also add events and causal relationships from their background knowledge. Pennington & Hastie, *The Story Model*, *supra* note 133, at 127-28. Pyszczynski and Greenberg explain that in states of inconsistency people engage in attempts to access information favorable to their hypotheses. Pyszczynski & Greenberg, *supra* note 197, at 328.

316. Festinger suggested that some form of *forgetting* inconsistent elements is a means of reducing inconsistency. *See* FESTINGER, *supra* note 202, at 91. Pepitone refers to structural changes in the way of "expelling" elements. *See* Albert Pepitone, *Some Conceptual and Empirical Problems of Consistency Models*, *in* COGNITIVE CONSISTENCY: MOTIVATIONAL ANTECEDENTS AND BEHAVIOR CONSEQUENTS, *supra* note 207, at 257, 290. Rosenberg suggested the possibility that irreconcilable elements might be excluded from the cognitive structure by means of "suppression." Milton J. Rosenberg, *An Analysis of Affective-Cognitive Consistency*, *in* ATTITUDE ORGANIZATION AND CHANGE, *supra* note 201, at 15, 22.

317. Perelman and Olbrechts-Tyteca explain that a choice to select certain elements and present them to the audience "endows these elements with a *presence*, which is an essential factor in argumentation." CHAIM PERELMAN & LUCIE OLBRECHTS-TYTECA, THE NEW RHETORIC: A TREATISE ON ARGUMENTATION 116 (1969) [hereinafter PERELMAN & OLBRECHTS-TYTECA, THE NEW RHETORIC].

318. According to Gurwitsch, one means of affecting the field of consciousness is by broadening the thematic field or by narrowing it. *See* Gurwitsch, *supra* note 115, at 224-25. Each such mechanism alters the constitution of the person's phenomenological experience. *See id.*

(b) Bolstering

The second general type of restructuring is that of *bolstering*. Whereas gate keeping distinguishes among propositions by including and excluding them in toto, bolstering refers to more moderate changes in the nature of propositions; it operates at the level of the attributes of the propositions. The cognitive system distinguishes among a proposition's various attributes, some of which are made salient in the mental model, while other are de-emphasized or disregarded. By selectively emphasizing certain attributes, the cognitive system effectively reconstructs the proposition and bolsters its implication for one of the alternative decisions.[319] Bolstering is probably the most common of the modification modes and it is a relatively conspicuous phenomenon. Unlike the stealth-like manner in which propositions are included or excluded, bolstering is performed on propositions that remain present in the mental model. If we observe them closely, we can see them change.

Bolstering commonly amounts to a moderate shift in the nature of the propositions. It has been referred to as the *reinterpretation*,[320] the *changing*,[321] of propositions.[322] One prevalent form of restructuring concerns the way people assess the evidence that supports a proposition, particularly in inference-based decisions. As a consequence of bolstering the evidence, the propositions receive stronger support. This phenomenon is referred to as *biased evaluation*.[323] Festinger suggested that when faced

319. For example, Abelson suggests that the tension between evolution theory and the biblical version of creationism can be solved by differentiating between a figurative view of the bible and a literal one. He argues that, taken figuratively, the biblical account of the creation of the world may not seem contradictory to the theory of evolution. *See* Abelson, *supra* note 313, at 345-46.

320. *See* FESTINGER, *supra* note 221, at 157; Tesser, *supra* note 313, at 313.

321. FESTINGER, *supra* note 202, at 264.

322. In phenomenological theory, bolstering is described as "singling out" or as "synthesizing" the theme of a field. *See* Gurwitsch, *supra* note 115, at 240-44.

323. Biased evaluation was demonstrated in an important experiment by Lord, Ross and Lepper, which examined the ways in which people evaluate evidence that has some bearing on their existing attitudes. The findings showed that people tend to accept at face value evidence that confirms their preconceptions, while critically scrutinizing disconfirming evidence. *See* Lord et al., *Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence*, 37 J. PERSONALITY & SOC. PSYCHOL. 2098, 2106 (1979). Similar findings were made by Lord et al., *supra* note 314; and Tom Pyszczynski et al., *Maintaining Consistency Between Self-Serving Beliefs and Available Data: A Bias in Information Evaluation Following Success and Failure*, 11 PERSONALITY & SOC. PSYCHOL. BULL. 179 (1985).

with new incoherent information, people are likely to engage in "erroneous interpretation or perception of the material, or any other technique or maneuver which will help to abolish the newly introduced dissonance and to prevent the further introduction of dissonance."[324] Random, mixed or inconsistent data can be processed to maintain and reinforce coherence, so that people holding opposing positions can claim support from the same ambiguous data.[325]

Similar findings were made in our recent series of experiments of bi-directional reasoning.[326] Recall that subjects were asked to make a decision that was influenced by six propositions. Their task, then, was to make six inferences and integrate them into a discrete choice between two decision alternatives. Five of the inferences required evaluation of propositions based on given data.[327] In accordance with our hypothesis, as the experiment evolved, the subjects changed their evaluations of these propositions considerably: all changes increased the level of coherence among those propositions as well as with the respective decision.[328]

Bolstering comes in varying strengths. At times, the bolstering of a proposition can be severe enough to lead to its virtual replacement by a different proposition.[329] We say then that the proposition has been

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324. FESTINGER, *supra* note 202, at 134.

325. *See* Lord et al., *supra* note 314, at 2099, 2108. Similarly, McGuire suggested that when exposed to new information, people make a "deliberate effort to tie in the new information with as many other cognitions as they possibly can . . . and then endeavor to maximize the internal coherence of this new more elaborate system." McGuire, *supra* note 199, at 143. Schlenker states that data which contradicts existing knowledge or evidence will be discounted as being unbelievable or unacceptable. Schlenker, *supra* note 219, at 202. Pennington and Hastie suggest that the intermediate causal model constructed by jurors facilitates their evidence comprehension and directs the inferences they make. Pennington & Hastie, *The Story Model*, *supra* note 133, at 124. Pyszczynski and Greenberg state that people tend to judge inconsistent information as less valid or relevant. In a piquant observation, they note that scientific researchers have been shown to *explain away* findings that are inconsistent with their own. Pyszczynski & Greenberg, *supra* note 197, at 328, 330.

326. *See* Holyoak & Simon, *supra* note 90; Simon et al., *supra* note 90; *supra* note 250 and accompanying text (providing detailed description of experiment).

327. The five evaluations included a causal attribution (an evaluation of what caused a certain consequence), a motivational attribution (what was the mental state of the protagonist), an evaluation of the truthfulness of a statement in light of the available data, an analogy to a similar situation, and a syllogistic-like deduction. The six inferences were based on a policy question concerning the regulation of speech over the Internet.

328. Holyoak & Simon, *supra* note 90; Simon et al., *supra* note 90.

329. *See* BILLIG, *supra* note 197, at 118-55; *see also* Spellman & Holyoak, *supra* note 216, at 926.

redefined,[330] or *distorted*.[331] One way to redefine a proposition is by changing its level of abstraction.[332] The familiar notions of "sour grapes" and "sweet lemon" are typical examples of character redefinition. Euphemisms are a familiar rhetorical manifestation of this phenomenon.[333] Another form of bolstering is that of *strength alteration*; that is, bolstering the inference-mediators, rather than the propositions. When the strength of a mediator is modified, a given datum might generate a somewhat different proposition. Thus the mental model can be changed by means of modifying the links that hold its components together.[334]

(c) Rule Selection

Another type of cognitive restructuring concerns the ways in which legal propositions are related to one another. That is, the rules of inference by which propositions lead to other propositions and, by extension, to the decision of the case. This form of modification is performed by way of selection of inference-mediators. In law, as in many other life settings,[335] multiple rules often compete for the same inferential tasks.

Psychological research shows that in addition to biased search of information in declarative knowledge structures, people selectively search through their procedural knowledge structures. In other words, people tend to retrieve and utilize inferential rules that fit some objectives that are

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330. The term "redefinition" was apparently coined by Abelson and Rosenberg. *See* Abelson & Rosenberg, *supra* note 201.

331. *See* Asch, *Determination of Judgments*, *supra* note 206, at 454; Kelman & Baron, *supra* note 219, at 671; *see also* Goethals & Reckman, *The Perception of Consistency in Attitudes*, 9 J. EXPERIMENTAL SOC. PSYCHOL. 491 (1973).

332. *See* Patrick Humphreys & Dina Berkeley, *Handling Uncertainty: Levels of Analysis of Decision Problems*, *in* BEHAVIORAL DECISION MAKING 257 (George Wright ed., 1985). A rhetorical manifestation of this mode was employed, for example, by Socrates in the *Protagoras*. *See* BILLIG, *supra* note 197, at 165-66.

333. On the use of euphemisms in discourse, see KEITH ALLAN & KATE BURRIDGE, EUPHEMISM & DYSPHEMISM: LANGUAGE USED AS SHIELD AND WEAPON (1991).

334. Changing the level of importance was mentioned by Festinger. *See* FESTINGER, *supra* note 202, at 264. This mode received serious attention in recent research which shows that, in many situations, people trivialize elements as a means of reducing inconsistency. *Trivialization* is especially important where the respective elements are highly resistant to change. *See* Linda Simon et al., *Trivialization: The Forgotten Mode of Dissonance Reduction*, 68 J. PERSONALITY & SOC. PSYCHOL. 247 (1995). Modification by trivialization is also suggested by Tesser. *See* Tesser, *supra* note 313, at 318.

335. HOLLAND ET AL., *supra* note 190, at 47-55.

extraneous to the inference itself.[336] A common finding is that people tend to access hypothesis-confirming inference rules and to avoid hypothesis-disconfirming rules.[337]

The availability of similarly applicable inference-rules is a ubiquitous phenomenon. A critical tradition featuring the oppositeness embedded in social conventions, aphorisms, and proverbs dates back to Francis Bacon.[338] British psychologist Michael Billig suggests that in order to accommodate the complexity of values and meanings that pervade our social worlds, our discursive conventions have internalized the contradictions. Opposites coexist proximally and seemingly peacefully in our language and cultures, and it is this proximity that enables preferences of particular meanings over other ones. To illustrate this point, Billig points out that there is no apparent way to determine which statement from the following pairs is better applied to any given situation: "many hands make light work" and "too many cooks spoil the broth;" "absence makes the Heart grow fonder" and "out of sight, out of mind;" and "love thy neighbor as thyself" and "charity begins at home."[339] Psychologists observe that one often finds mutually incompatible norms existing simultaneously within the same culture. This apparent contradiction is not necessarily paradoxical. As suggested by Robert Cialdini and his colleagues, incompatible norms compete for temporary prominence in consciousness. Different social or personal contexts activate one norm as temporarily prominent, and action follows accordingly.[340]

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336. *See* Kunda, *supra* note 136, at 488-89. Kunda's model of motivated reasoning plays a major role in Wrightsman's psychological approach to judicial decision making. *See supra* note 134 and accompanying text.

337. *See* Pyszczynski & Greenberg, *supra* note 197, at 321.

338. Bacon presented forty-seven pairs of commonsensical proverbs, each of which was matched with an equally sensible negation. For example, Bacon matched the maxim "[w]isdom that comes not quick comes not in season," with "[t]he wisdom that is ready at hand does not lie deep." Bacon did not spare even the very enterprise of rhetoric for which he stood; he contrasted "[h]e who relies on arguments decides according to the merits of the pleader, not the cause" with "[a]rguments are the antidote against the poisoning of testimony." BILLIG, *supra* note 197, at 235-36 (quoting Francis Bacon).

339. *See id.* at 241-42.

340. *See* Robert Cialdini et al., *A Focus Theory of Normative Conduct: A Theoretical Refinement and Reevaluation of the Role of Norms in Human Behavior*, 24 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 201, 204-05 (1995). John Darley offers a similar explanation for the often contradictory ways by which people explain other people's behavior. *See* John Darley, *Mutable Theories That Organize the World*, 6 PSYCHOL. INQUIRY 290 (1995). Because cultural truisms are often conflicting, we carry around contradictory rules for reading the meaning of the conduct of others. Darley states, "these differential decoding schemes will

Rule selection can be affected not only by choosing the rule itself; it can also be done by means of gate keeping or bolstering. Oftentimes, a change in the character of the underlying proposition provokes a subsequent change in the selection of an inference-mediator, and thus generates a radically different inference. Indeed, many inference-mediators are defined not in a unitary character, but are composites of different, possibly contradictory, rules; and they contain internal conditions for determining which rules will be *fired.* A familiar instance of such *composite rules* is where the relation between the rule and the proposition is one of: *If . . . , then . . . .* The selection among condition-action rules hinges on the antecedent conditions: when the conditions are of one type, the system applies a certain rule; under other conditions, a different rule is applied. This kind of *condition-action* rules are central to the theory of problem-solving in artificial intelligence (AI),[341] and they are ubiquitous in everyday reasoning.[342]

8. The Lack of Awareness

We now come to discuss the issue of the consciousness, or awareness, of the cognitive restructuring of the materials in the process of making a decision. First, it is necessary to clarify what is meant by the term "awareness."[343] Scientific psychologists commonly follow a definition offered by Dennett, which identifies awareness with having the object in

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be differentially called upon when they suit the case that a person is trying to make." *Id.* at 292-93.

341. *See* NEWELL & SIMON, *supra* note 190.

342. *See* TOULMIN, *supra* note 193. The notion of composite rules is captured in Toulmin's layout of argument. Toulmin suggests that arguments typically have *qualifiers* and *rebuttals.* Qualifiers confine the inference-mediators to certain premises or data. Thus, an inference-mediator will be applicable to a datum only as long as the qualifying conditions are not met. The qualifier, in effect, introduces an alternative inference-rule that competes with, or rebuts, the original one. The qualifier states that for different data, or under different conditions, the original mediator must be supplanted by the, often antithetical, *rebuttal.* Recall Toulmin's example of the argument: "Harry was born in Bermuda. So presumably, Harry is a British subject." The suggested warrant was "people born in Bermuda are usually British subjects." This inference-mediator could be qualified by the rebuttal "unless both his parents are aliens, or he became a naturalized American citizen." If either of these qualifying conditions is found to exist, then Harry's status will be determined by the rebuttals, not by the original inference.

343. On the theoretical and empirical muddle caused by the lack of a uniform definition of "awareness," see Eyal Reigned & Philip Merikle, *Theory and Measurement in the Study of Unconscious Processes, in* CONSCIOUSNESS 47 (M. Davies & G. W. Humphreys eds., 1993).

one's "speech center"; that is, being able to talk about it.[344] A person is said to be aware of something when he can talk about that thing.[345]

The question, whether judges are aware of the way they make decisions, is of great significance to our evaluation of the judicial practice. Empirical work on the issue of awareness has been extremely instructive in making two closely interrelated findings. First, it has been shown in a variety of research contexts that are similar to the decision making process, that people are generally unaware of changes occurring in their attitudes or beliefs. For the most part, they simply do not notice that they restructure the materials or that their inferences change. Second, people have great difficulty in recounting their pre-change beliefs. When asked to recall their original attitudes and beliefs, people tend to report ones that are similar to those they hold following the attitude-change. And when confronted with their original positions in debriefing sessions, they appear genuinely surprised, and on occasion also reject the findings adamantly. Thus, people tend to perceive relative constancy in their cognitive states and maintain that their current attitudes and beliefs are the same ones they held throughout the process.[346] These findings of unawareness lead to the important conclusion that in the

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344. DANIEL C. DENNETT, CONTENT AND CONSCIOUSNESS (1969). Dennett recasts the notion of *consciousness* into the term *awareness* in the sense that "being conscious" is equivalent to "having the capacity to be aware of" things. Dennett distinguishes between two types of awareness. In the first sense, a person is aware of something only when it is the content of her "speech center" at that moment. In the second sense, a person is aware of something only if it is the content of an internal event that is effective in directing that person's current behavior. Roughly speaking, people are aware of a proposition in the first sense only if they are *able to talk about it*, and in the second sense only if someone observing their behavior would infer that they are taking account of it. *See id.*

345. *See* Gordon Bower, *Awareness, the Unconscious, and Repression: An Experimental Psychologist's Perspective*, *in* REPRESSION AND DISSOCIATION; IMPLICATIONS FOR PERSONALITY THEORY, PSYCHOPATHOLOGY, AND HEALTH 209, 210 (Jerome L. Singer ed., 1990).

346. Findings to this effect were first made by Asch. *See* Asch, *Determination of Judgments*, *supra* note 206, at 438-39. For replications, see Percy Tannenbaum, *The Congruity Principle: Retrospective Reflections and Recent Research*, *in* THEORIES OF COGNITIVE CONSISTENCY, *supra* note 199, at 52, 66; Daryl Bem & Keith McConnell, *Testing the Self-Perception Explanation of Dissonance Phenomena: On the Salience of Premanipulation Attitudes*, 14 J. PERSONALITY & SOC. PSYCHOL. 23, 30 (1970); Michael Ross & Ronald F. Shulman, *Increasing the Salience of Initial Attitudes: Dissonance Versus Self-Perception Theory*, 28 J. PERSONALITY & SOC. PSYCHOL. 138, 142 (1973); *see also* Bower, *supra* note 345; Goethals & Reckman, *supra* note 331; Holyoak & Simon, *supra* note 90; Lord et al., *supra* note 314, at 1237; Dennis Wixon & James Laird, *Awareness and Attitude Change in the Forced-Compliance Paradigm: The Importance of When*, 34 J. PERSONALITY & SOC. PSYCHOL. 376, 382 (1976).

context of judicial making, the reported experience of constraint, singular correctness and confidence are overall genuine.[347]

The two findings are interrelated in the sense that unawareness of the modification is contingent on the person's inability to recall the original beliefs. The rationale is rather simple: if a person notices discrepancies between the beliefs she held at the beginning of the process and those that she holds at its end, she must conclude that somewhere during the process a transformation occurred. If, however, the original beliefs are forgotten or perceived to be similar to the final ones, the person can easily conclude that little or no transformation occurred.

It appears that the unawareness of cognitive change serves an important adaptive function. Participants in the modernist experience, judges included, place a high premium on objectivity, constancy, and systematic methods of inquiry and proof. The notion that facts, concepts, and propositions are transformed by one's own mental process does not sit well with these standards of rationality. However, any possible tension that might have arisen is thwarted by the fact that the restructuring is, in general, phenomenologically unacknowledged. The decision maker's unawareness of the true nature of the process thus preserves the perception that the materials remain unchanged, and so the process seems objective.[348] This is what researchers call the "illusion of objectivity."[349] In the judicial context, this means that the judge has little reason to suspect his experience of constraint, singular correctness and confidence.

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347. For more on this aspect of judging, see *infra* notes 470-79 and accompanying text.

348. Weak memory trace is understood to serve a similar function with regard to the hindsight bias. *See* Wolfgang Hell et al., *Hindsight Bias: An Interaction of Automatic and Motivational Factors?*, 16 MEMORY & COGNITION 533, 537 (1988).

349. *See* Pyszczynski & Greenberg, *supra* note 197, at 330-31, 333. Pennington and Hastie state that the "story's" structural influence on the interpretation and construction of new evidence contributes to the confidence assigned to the accuracy of the decision. Pennington & Hastie, *Explanation-Based Decision Making*, *supra* note 133, at 125. Lord, Ross, and Lepper point to the troubling finding that despite the biases in evaluating the scientific data, each of the contending factions believed that the data justified their positions objectively. *See* Lord et al., *supra* note 323, at 2108. Kunda summarizes that the sense of objectivity is based on the fact that people fail to realize the biased ways in which they access their beliefs and apply rules. *See* Kunda, *supra* note 134, at 483.

Deciding By Hunches

The awareness of a decision maker at the end of the process requires further clarification.[350] It is important to make a distinction between awareness of the *content* of the decision and awareness of the *process* that leads to it. Research shows that people have fairly good access to the contents of their mental states, that is, they can access the conclusions, beliefs and decisions they reach.[351] We know, for example, that judges are fully aware of the arguments that lend support to their decisions. On the other hand, people have quite limited awareness of the processes that lead to their conclusions, beliefs and decisions.[352] As William James stated "when the conclusion is there, we have always forgotten most of the steps preceding its attainment."[353] In the judicial context, limited access to procedural knowledge is most significant with regard to the restructuring of the materials. It is relevant also to the stopping criterion used. Judges are probably incapable of articulating which stopping rule they used to bring the decision to its completion.

This discrepancy between awareness of content and awareness of procedural knowledge might provide the key to understanding the notion of the hunch. People frequently resort to the hunch, or the intuition, to describe

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350. There is agreement among scientific psychologists that, in complex decision processes, the decision maker is typically more aware of some sub-processes than of others. *See* Kunda & Thagard, *Forming Impressions*, *supra* note 246, at 287-88; *see also* JOHN A. BARGH, *Conditional Automaticity: Varieties of Automatic Influence in Social Perception and Cognition*, *in* UNINTENDED THOUGHT 3, 4 (James S. Uleman & John A. Bargh eds., 1989) [hereinafter BARGH, *Conditional Automaticity*]; John A. Bargh, *The Four Horsemen of Automaticity: Awareness, Intention, Efficiency, and Control*, *in* HANDBOOK OF SOCIAL COGNITION 28 (Robert S. Wyer, Jr. & Thomas K. Srull eds., 2d ed. 1984) [hereinafter Bargh, *Four Horsemen*].

351. *See, e.g.*, Anderson et al., *supra* note 308.

352. The limited access to mental processes was demonstrated most notably by Nisbett and Wilson. They showed that, in some contexts, when people are asked to report their mental processes, they manage only to offer plausible hypotheses about the possible causes to their behavior. *See* Richard Nisbett & Timothy Wilson, *Telling More Than We Can Know: Verbal Reports on Mental Processes*, 84 PSYCHOL. REV. 231 (1977); *see also* NISBETT & ROSS, *supra*, note 197, ch. 9; Roy F. Baumeister, *The Self*, *in* 1 THE HANDBOOK OF SOCIAL PSYCHOLOGY, *supra* note 139, at 680, 693.

But see K. ANDERS ERICSSON & HERBERT A. SIMON, PROTOCOL ANALYSIS: VERBAL REPORTS AS DATA 25-30 (rev. ed. 1993); Eliot R. Smith & Fredrick D. Miller, *Limits on Perception of Cognitive Processes: A Reply to Nisbett and Wilson*, 85 PSYCHOL. REV. 355 (1978).

353. JAMES, *supra* note 226, at 251.

their decision making technique. Indeed, serious and insightful judges of the caliber of Holmes, Cardozo, Frank and Hutcheson have described their decisions as being determined by hunches and intuitions.[354] The notion of the hunch is often understood in legal theory to mean unprincipled, whimsical decision making or unfettered discretion.[355] A different approach is available, and it is better grounded in research.

I suggest that, given the decision maker's particular state of awareness, the hunch is an intuitive and reasonable way to account for a decision. With the lopsided mental models in mind, the decision maker is strongly aware of the content of the decision. He feels confident that one decision is compelled by the legal materials. In contrast, he cannot describe the process that brought him to this state. While the decision seems obvious, this obviousness is inexplicable. This somewhat bizarre feeling is what people describe as a hunch. The hunch, then, is a candid way to describe the feeling of being sure about something while being incapable of adequately accounting for that feeling.[356] According to Gestalt theory and phenomenological psychology, the hunch can be seen on a continuum with the related phenomena of *Eureka* effects and *clicking-in* effects. The former refers to situations in which the person gets a sudden insight into a problem even though she was not paying attention to it at that moment. The clicking-in effect describes a sudden appearance of the solution to a thought task at the time the person was engaged in the problem.[357] The hunch differs from the clicking-in effect in that the hunch is a gradual, rather than sudden, discovery of the solution.[358] The notion of the hunch is best captured in Cardozo's splendid metaphor of the *fog lifting* from the obscured problem.[359]

The concept of awareness plays an important role in the distinction between *automatic* and *controlled* processes. This classification, which currently cuts across many areas of scientific psychology, differentiates mental processes that occur more or less independently of one's attention

354. *See infra* notes 480-89 and accompanying text (discussing the hunch).

355. *See infra* note 484 and accompanying text (explaining how the hunch is misunderstood).

356. *See* Jennifer Dorfman et al., *Intuition, Incubation, and Insight: Implicit Cognition in Problem Solving*, *in* IMPLICIT COGNITION 257, 263 (Geoffrey Underwood ed., 1996).

357. *See* P. SVEN ARVIDSON, *Looking Intuit: A Phenomenological Exploration of Intuition and Attention*, *in* INTUITION: THE INSIDE STORY (Robbie Davis-Floyd & P. Sven Arvidson eds., 1997).

358. In phenomenological theory the notion of the hunch is described as the effect of "elucidation." *See* Gurwitsch, *supra* note 115, at 225.

359. *See infra* note 468.

from those that are more explicit, effortful, deliberate and therefore controlled.[360] For the most part, the lack of awareness suggests automaticity, whereas awareness is correlated with controllability. The significance of automaticity to the judicial practice stems from the fact that people are mostly incapable of regulating and checking their automatic processes. This issue will be discussed below.

Finally, it should be acknowledged that people are not entirely unaware of processes such as those that are operative in decision making tasks. Properly conceived, the question of awareness does not hinge on a sharp division between full knowledge and total ignorance. The cognitive system also works at the intermediate, preconscious level.[361] Indeed, the experimental findings of recall of pre-change beliefs demonstrated a significant tendency to forget initial beliefs, though the failure to recall was not absolute.[362] Judges, it might be suggested, have some recollection of the initial conflict of the cases. The significance of this issue, too, will be discussed below.

9. Some Characteristics of Mental Model Building

It is impossible not to notice that various degrees of incoherence abound in our physical and social worlds, and that people's life-spaces are not coherent throughout. Coherence is clearly a *relative* property. This relativity is evident with regard to judicial decision making. Some judicial opinions are more coherent than others; some decisions do not incorporate all possible arguments while others, like the *Ratzlaf* opinion, seem to cover all the bases. This view of relative coherence comports with the connectionist approach: in intricate processes involving a multiplicity of contradictory constraints, complete openness is unmanageable though absolute closure is impossible. A helpful way to understand this variance is to examine the factors that enhance the tendency towards coherence and those that limit it. This model would be incomplete if it did not consider these variables.

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360. Mental processes are generally said to be automatic when they occur outside of awareness, they are unintentional, they require little cognitive effort, and they are readily stoppable. Not all four criteria have to be present in order to treat a process as automatic. *See* Bargh, *Four Horsemen*, *supra* note 350; Daniel M. Wegner & John A. Bargh, *Control and Automaticity in Social Life*, *in* 1 THE HANDBOOK OF SOCIAL PSYCHOLOGY, *supra* note 139, at 446.

361. *See* Wegner & Bargh, *supra* note 360, at 460-61.

362. *See, e.g.*, Holyoak & Simon, *supra* note 90.

Both the enhancing and the limiting factors are influenced by a blend of *cognitive* features and *task-related* features.[363] The tendency towards coherence appears to be driven by a basic, general feature of the cognitive system. That is, it occurs automatically, without any specific motivation or intentional goal.[364] This feature might be seen as a natural property of the dynamic nature of thought processes,[365] or as a mechanism that serves the *simplification motive*—a ubiquitous means of promoting cognitive economy. Structuring complex cognitive sets into tightly-bound, homogenous representations serves to reduce the quantity and complexity of the information involved in thought processes. Coherent structures are likely to be easiest to process, memorize, learn, and use for future inferences.[366]

The gravitation towards coherence of complex thought processes is not driven by the cognitive feature alone. The process is influenced considerably by a variety of more contextual, *task-related* features, some of which constitute the person's role conception. These contextual factors serve the double function of propelling the process and of determining its stopping-point. In other words, these factors will augment the tendency towards coherent mental models, and they will also determine the level of coherence required for the particular social context. As mentioned above, it is broadly accepted in American legal culture that closure serves a *functional purpose* in that it is perceived to enhance the acceptability of the decision and to promote the institutional legitimacy of the court. This perception has been incorporated into the judicial role-conception. Thus, judicial decisions are generally coherent because most judges believe that that is what is expected from their role.[367]

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363. On the integration of motivational and cognitive aspects of thought, see *supra* note 222.

364. *See* Read et al., *supra* note 204, at 30.

365. *See id.*

366. *See* Steven Neuberg & Jason Newsom, *Personal Need for Structure: Individual Differences in the Desire for Simple Structures*, 64 J. PERSONALITY & SOC. PSYCHOL. 113, 113-14 (1993). In this regard, the tendency towards coherence seems to serve a similar function to the cognitive feature of *categorization*, by which people divide the world in a way that maximizes intra-category similarity and minimizes inter-category similarity. *See* Smith, *supra* note 189, at 7; *see also* Eleanor Rosch, *Principles of Categorization*, *in* COGNITION AND CATEGORIZATION 27, 28 (Eleanor Rosch & Barbara L. Lloyd eds., 1978).

367. The effect of the functional perception on the decision might be complemented by the fact that many judges follow a jurisprudence based on prescriptive coherence. *See* discussion *supra* Part I.B.2 ("Prescriptive and Functional Explanations").

Additional factors that enhance coherence include the need to make binary judgments;[368] the desire to terminate the unpleasantness entailed by the state of conflict;[369] the social advantage of deflecting responsibility;[370] and the fact that judges are held accountable for their decisions.[371] These variables vary across domains and cultures.[372] The level of closure is influenced also by the specific case at hand. Closure might be enhanced by the seriousness of the issues involved,[373] the similar attractiveness of the choice alternatives,[374] and the existence of opposition to the decision.[375]

368. Judges highlight the general fact that their task is "to decide, not to debate." LEARNED HAND, *On Cardozo, in* THE SPIRIT OF LIBERTY, *supra* note 148, at 131; *see also* Henry J. Friendly, *Reactions of a Lawyer-Newly Become Judge*, 71 YALE L.J. 218, 230 (1961). Frank stated that legal argument is affected by the fact that "lawyers, more than most men, are compelled to reconcile incompatibles." FRANK, MODERN MIND, *supra* note 22, at 33. Judge Schaefer explained that cases "must be decided, and must be disposed of . . . . There are no intermediates. Judgment must go for one party or for the other. . . . Uncertainty, however, will not justify a failure to dispose of the case." Schaefer, *supra* note 9, at 7; *see also* Kaufman, *supra* note 65, at 18.

369. Posner speaks of judges' aversion to wallowing in uncertainty and regrets. Following Pierce, he states "people hate being in a state of doubt and will do whatever is necessary to move from doubt to belief." Posner, *Skepticism, supra* note 15, at 873. On the effect of tension on decision making, see JANIS & MANN, *supra* note 282, at 45-54.

370. Posner suggests that, like all other people, judges want "to diffuse responsibility for their unpopular, controversial, or simply most consequential actions, and they do this by persuading themselves that their decisions are dictated by law, rather than the result of choice." Posner, *Skepticism, supra* note 15, at 873.

371. When people perceive that they are accountable to an audience, their cognitive processes and outcomes are likely to be influenced by the perceived norms and expectations of that audience. *See* Schlenker, *supra* note 219; *see also* Kunda, *supra* note 136, at 482-83; Pyszczynski & Greenberg, *supra* note 197, at 317, 328. On accountability in general, see Tetlock's Social Contingency Model, in *The Impact of Accountability on Judgment and Choice: Towards a Social Contingency Model*, 25 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 331 (1992).

372. *See* Steven Heine & Darrin Lehman, *Culture, Dissonance, and Self-Affirmation*, 23 PERSONALITY & SOC. PSYCHOL. BULL. 389 (1997). For cultural differences between Japanese and Americans, see Hiroshi Wagatsuma & Arthur Rosett, *Cultural Attitudes Towards Contract Law, Japan and the United States Compared*, 76 PAC. BASIN L.J. 76, 86-87 (1983).

373. Festinger postulated that the more important the propositions, the greater the magnitude of dissonance; and the greater the magnitude, the more intensive the efforts to reduce it. FESTINGER, *supra* note 202, at 263.

374. Cognitive dissonance theory postulates that the more close the attractiveness of the alternatives, the stronger the incoherence and the stronger the tendency to spread them apart. *See id.* at 37-38. This postulate was proven by Brehm, *supra* note 211.

375. Robert Zajonc showed that people who were asked to make a decision, while knowing that at a later stage they would be confronted with a person holding an opposite

The factors that limit the progression of coherence are as important to our understanding of the process as those that enhance it. Naturally, coherence is only one feature in the larger cybernetic cognitive system, thus it cannot increase without limit. Proponents of consistency theories concede that coherence is not the single, nor the most prominent, human motive, and that absolute coherence is rarely attainable.[376] Festinger stated repeatedly that dissonance-reduction will invariably be counteracted by more powerful tendencies, and thus never be achieved in full.[377] Rosenberg and Abelson explain that people "cannot 'neutralize,' 'counteract,' etc. at will, but must operate within a set of constraints."[378] Gestalt theorists explained that the forces towards prägnanz are restricted by what "the given topography permits."[379]

A classical limiting variable stems from the discourse-determined confines of *acceptability*. This essentially boils down to the *plausibility* of the restructured propositions. Since the propositions represented in the models are in continuous flux and undergo significant modification, there is a danger that they will wander too far off course. Thus, reasoning processes must be delimited by the relevant community's discursive practices and conventions. When we cross those limits, we are said to be unrealistic or irrational, and that we are and breaching the conventions of the discipline.[380] As Abelson explained, cognitive restructuring runs into difficulties when it becomes "too great a distortion of reality."[381] Consistency theorists explain that modification of a proposition must

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opinion, tended to process the information in more coherent ways than people who did not expect any such opposition. *See* Zajonc, *supra* note 93, at 166. This factor seems to shed light on the informal observations that judicial opinions that are decided unanimously are typically more moderate than opinions decided by a majority vote, and that courts in which dissenting is commonplace tend to produce more extreme, that is, coherent opinions. Few courts exemplify the latter observation more than the United States Supreme Court.

376. *See* FESTINGER, *supra* note 202, at 276-77.

377. *See id.* at 23, 45, 53, 134, 276; *see also* Abelson, *supra* note 219, at 38; Elliot Aronson, *Dissonance Theory, Progress and Problems*, *in* THEORIES OF COGNITIVE CONSISTENCY, *supra* note 199, at 5, 26.

378. Rosenberg & Abelson, *supra* note 200, at 152; *see also* Andrew Elliot & Patricia Devine, *On the Motivational Nature of Cognitive Dissonance: Dissonance as Psychological Discomfort*, 67 J. PERSONALITY & SOC. PSYCHOL. 382, 388 (1994).

379. Köhler, *supra* note 210, at 51.

380. *See* Abelson, *supra* note 313, at 345; Kelman & Baron, *supra* note 313, at 682.

381. *See* Abelson, *supra* note 313, at 345; *see also* JACK W. BREHM & A. R. COHEN, EXPLORATIONS IN COGNITIVE DISSONANCE 65 (1962); Kunda, *supra* note 136, at 482; Simon et al., *supra* note 334, at 249; Tesser, *supra* note 313, at 305.

correspond with reality,[382] and with the "objective evidence presented in the raw material."[383] In other words, the cognitive process must withstand "reality tests."[384] Indeed, research shows that people interrupt reasoning processes to test the validity of their tentative conclusions.[385] Such reality testing is essential for a good judicial decision making process. When finding that a proposition in the mental model becomes implausible, the decision maker will have to return to reconstruct the model or erect a new one.

The restructuring of a proposition in a network will also depend on the properties of the propositions themselves, most notably, their *ambiguity* and *centrality*. A proposition is said to be ambiguous when a multiplicity of its attributes can be isolated from one another with relative ease.[386] Ambiguous propositions are malleable and thus especially susceptible to restructuring.[387] A moderate degree of bolstering is enough to subject it to different characterizations and interpretations, thereby altering its interaction with the network.

Propositions that correspond to beliefs which are strongly held and are considered important to the person are called central propositions.[388] Central propositions are highly activated and are connected to a large

382. *See* FESTINGER, *supra* note 202, at 265-66.

383. *See* Heider, *supra* note 200, at 120-21.

384. *See* Rosenberg & Abelson, *supra* note 200, at 159.

385. For research on validity testing in the context of hypothesis generation, see Stanley D. Fisher et al., *Consistency Checking in Hypothesis Generation*, 31 ORG. BEHAV. & HUM. DECISION PROCESSES 233 (1983).

386. *See* EDWARD E. JONES & HAROLD B. GERARD, FOUNDATIONS OF SOCIAL PSYCHOLOGY 194 (1967).

387. *See* Tesser, *supra* note 313, at 316-17; *see also* Asch, *Determination of Judgments*, *supra* note 206, at 434. Similarly, McGuire suggested that the greatest change is imposed on issues "most easily redefined." William McGuire, *Cognitive Consistency and Attitude Change*, 60 J. PERSONALITY & SOC. PSYCHOL. 345, 349 (1960). The malleability of ambiguous propositions has been empirically proven in Abraham Tesser & Claudia Cowan, *Some Attitudinal and Cognitive Consequences of Thought*, 11 J. RES. PERSONALITY 216 (1977). For recent research performed in the domain of decision making, see Christopher K. Hsee, *Elastic Justification: How Unjustifiable Factors Influence Judgments*, 66 ORG. BEHAV. & HUM. DECISION PROCESSES 122 (1996).

A related phenomenon was observed by Aristotle: "When there is much going around in a circle, it cheats the listeners and they feel the way many do about oracles: whenever the latter speak [equivocally] most people nod in assent." ARISTOTLE, ON RHETORIC 232 (George A. Kennedy trans., 1991).

388. On central propositions, see Pyszczynski & Greenberg, *supra* note 197, at 331. On propositions that are positively related to a large number of propositions, see FESTINGER, *supra* note 202, at 27; *see* McGuire, *supra* note 387, at 349.

number of other elements in the network. Central propositions are relatively dominant in activating other ones, and are resistant to change from the outside. Empirical findings show that peripheral propositions tend to yield more readily to cognitive pressures than do central ones.[389] Recall that the representation of the propositions and inferences is affected by the person's subjective evaluation and background knowledge,[390] so that characteristics such as ambiguity and centrality vary from judge to judge.

It should be noted that the tendency towards coherence is not an invariable personality trait. Judges, like all people, vary in their personal propensity towards coherence. Some people are relatively tolerant to complexity and conflict, whereas others tend to maintain clean, coherent mental states—the latter type are said to have a high need for coherence.[391] Moreover, people also differ in the capability to produce coherent results. Festinger called this skill *mental agility*.[392] The more cognitively agile the person, the better he is in restructuring his world so as to attain coherence. It is likely that there is a relationship between the need for coherence and the ability to put it into effect.

C. Illustrations of the Model in Legal Theory

It is time now to examine how this psychological model comports with existing accounts of judicial decision making. I attempt to demonstrate that many of the significant aspects of this psychological model have been reported by judges and observed by legal scholars. As stated, the citations provided here represent only a fragment of the available descriptions of judging, and they are brought here not as "proof" of the validity of the model, but rather as demonstrations of how closely insights made by practitioners and students of judging correspond to propositions that follow a psychological approach.

Connectionist Representation and Gestaltian Holism. As stated, the kind of controversies that face judges is that of multitudes of apparently good arguments supporting different conclusions. Connectionist-like forms of

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389. *See* Rosenberg, *supra* note 179, at 82-89; Shelly Chaiken & Mark Baldwin, *Affective-Cognitive Consistency and the Effect of Salient Behavioral Information on the Self-Perception of Attitudes*, 41 J. PERSONALITY & SOC. PSYCHOL. 1 (1981).

390. *See supra* notes 230, 277 and accompanying text.

391. For personality constructs directed at the need for coherence, see Donna Webster & Arie Kruglanski, *Individual Differences in Need for Cognitive Closure*, 67 J. PERSONALITY & SOC. PSYCHOL. 1049 (1994); *see also* Neuberg & Newsom, *supra* note 366, at 117.

392. *See* FESTINGER, *supra* note 202, at 44.

legal reasoning are quite ubiquitous in law, though in most cases they are not explicitly recognized as such.[393] Cardozo has offered the most poignant images of the intricate contradiction and conflict inherent in tough legal questions. Cardozo describes the challenge in judging as: "The reconciliation of the irreconcilable, the merger of antithesis, the synthesis of opposites, these are the great problems of the law."[394] He continues: "Deep beneath the surface of the legal system, hidden in the structure of the constituent atoms, are these attractions and repulsions, uniting and dissevering as in one unending paradox. 'Fundamental opposites clash and are reconciled.' "[395] Cardozo also uses the image of "webs" to describe the judicial dilemma.[396] Elsewhere he describes: "Analysis alternates with synthesis; deduction with induction; reason with intuitions. The whole in Gèny's words is 'a procedure extremely complex, and full of delicate nuances, all penetrated with casuistry and dialectics . . . .' "[397] Connectionist representations are also central to William Eskridge and Philip Frickey's theory of interpretation. In their view, "We all accept a number of different values and propositions that, taken together, constitute a web of intertwined beliefs."[398] It should be noted that, with the exception of formalist approaches to law, legal arguments are generally perceived to constitute soft, rather than hard, constraints.[399]

Bi-directional Reasoning. Judges Jerome Frank and Aharon Barak have observed the intimate link between facts and rules, that makes the tasks of determining facts and discerning legal principles mutually

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393. On the connectionist nature of judicial decision making, see *supra* note 274 and accompanying text.

394. CARDOZO, *Paradoxes*, *supra* note 14, at 4.

395. *Id.* at 7.

396. CARDOZO, GROWTH OF THE LAW, *supra* note 45, at 64-65.

397. *Id.* at 226.

398. Eskridge & Frickey, *supra* note 54, at 348. For a similar conception of legal questions as webs of belief, see STEVEN J. BURTON, AN INTRODUCTION TO LAW AND LEGAL REASONING 132-36 (1985). However, Burton's proposed method of processing the legal problems seems to fall short of solving the complexity of such representations.

399. Cardozo, for example, spoke about "the relativity of legal truths." CARDOZO, *Paradoxes*, *supra* note 14, at 81. Dworkin explains that constraints imposed by his theory of judging on substance are "not the constraint of external hard fact or of interpersonal consensus. But rather the structural constraint of different kinds of principle within a system of principle, and it is none the less genuine for that." DWORKIN, *supra* note 74, at 257. In Eskridge and Frickey's interpretive theory, each of the criteria used "is relevant, yet none necessarily trumps the others." *See* Eskridge & Frickey, *supra* note 54, at 352.

interdependent.[400] Indeed, Frank explicitly described these connections in terms of Gestalt psychology.[401] Cardozo applied a connectionist approach to bridge statutory clauses to one another and to their social ends: "the meaning of a statute is to be looked for, not in any single section, but in all the parts together and in their relation to the end in view."[402] Connectionist notions were used also by Judge Learned Hand to describe textual interpretation.[403]

Gestaltian concepts are found also in the work of prominent legal scholars. Dewey stated that decision making does not flow from premises to conclusions, but is rather a continuous process in which premises gradually emerge from analysis of the "total situation."[404] Eskridge and Frickey's dynamic theory of interpretation is based on a hermeneutical circle. In this approach, "a true dialogue with the text requires the interpreter to reconsider her preunderstanding as she considers the specific evidence in the case, and then to formulate a new understanding, which in turn is subject to reconsideration." Following Gadamer, they state that "the 'to and fro movement' involved in the hermeneutical circle is not just the interpreter's movement from a general view . . . to specific evidence . . . ; rather, it requires her to test different understandings of the text . . . to determine proper interpretation."[405]

Sequential Construction of Mental Models. Several writers have described the decision making process as progressing gradually and sequentially in a manner similar to that characterized in the dynamic account of mental model building. Cardozo explains: "The compromises and adjustments that will achieve the largest security of social interests with the

400. *See* AHARON BARAK, JUDICIAL DISCRETION 19 (Yadin Kaufman trans., 1989). Aharon Barak is currently the President of the Israeli Supreme Court.

401. *See* FRANK, COURTS ON TRIAL, *supra* note 6, at 175, 189; *see also* Jerome Frank, *Words and Music: Some Remarks on Statutory Interpretation*, 47 COLUM. L. REV. 1259, 1267 (1947) [hereinafter Frank, *Words and Music*]. Frank also applied Gestalt psychology in a judicial opinion. *See* Skidmore v. Baltimore & O. R. Co., 167 F.2d 54, 58-60 (2d Cir. 1948). For a comprehensive application of Gestalt theory to judicial decision making, see Judge Jack Grant Day, *How Judges Think: Verification of the Judicial Hunch*, 1 J. CONTEMP. LEGAL ISSUES 73 (1988). When writing this Article, Judge Day was a retired Chief Justice of the Court of Appeals of Ohio.

402. Panama Refining Co. v. Ryan, 293 U.S. 388, 433, 439 (1935) (Cardozo, J., dissenting).

403. Judge Hand stated "the meaning of a sentence may be more than that of the separate words, as a melody is more than the notes, and no degree of particularity can ever obviate recourse to the setting in which all appear, and which all collectively create." Helverling v. Gregory, 69 F.2d 809, 810-11 (2d Cir. 1934).

404. Dewey, *supra* note 32, at 23.

405. Eskridge & Frickey, *supra* note 54, at 351-52.

least sacrifice, must be sought through a process of trial and error."[406] Dewey described thought processes as beginning in structures of conflict, from which "the formation of both major premise and minor proceed tentatively and correctively in the course of analysis of this situation and of prior rules."[407] Llewellyn described the decision process as that of "successive mental experiments as imagination developed and passed in review of various possibilities until one or more turned up which had appeal."[408] Similarly, James Boyd White describes: "we make sense of what we read as we make sense of life, by putting one tentative judgment together with another, one version of ourselves and our capacities together with another, seeing how it works out, trying it another way, and so on, continually growing and changing by progressive incorporations and discardings."[409] In Eskridge and Frickey's interpretive theory, the judicial process advances by testing and re-testing the possible interpretations against a variety of interpretive considerations. The interpreter will finally come to accept an interpretation based on "a congeries of supporting arguments, which may buttress her view much 'like the legs of a chair and unlike the links of a chain.' "[410]

The Restructuring of the Legal Materials. One of the central themes of the psychological model has been that judicial decision making is affected strongly by the evolving cognitive representation of the legal materials, rather than by the inherent nature of the materials themselves. It is noteworthy that several judges have explicitly confirmed the important role played by psychological phenomena. This point was made strongly by Holmes, Hutcheson and Cardozo. In his criticism of legal formalism, Holmes sets out to debunk the notion of certainty of logical argument: "The language of judicial decision is mainly the language of logic. And the logical method and form flatter that longing for certainty and repose which is in every human mind."[411]

It is not logic, then, that imbues formalistic law with a sense of closure. Rather, it is a psychological "longing" that drives the process towards an idealized state. A similar insight was offered by Judge Hutcheson. He explained that it is "the power of the brooding mind which in its very

406. CARDOZO, *Paradoxes*, *supra* note 14, at 55.

407. Dewey, *supra* note 32, at 23.

408. LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 11.

409. James Boyd White, *Introduction: Is Cultural Criticism Possible?*, 84 MICH. L. REV. 1373, 1384 (1986).

410. Eskridge & Frickey, *supra* note 54, at 352 (quoting Robert Summers).

411. Holmes, *The Path of Law*, *supra* note 4, at 167.

brooding makes, creates and changes jural relations."[412] Cardozo explained that attempts to find coherence in law "are inspired by the same yearning for consistency, for certainty, for uniformity of plan and of structure. They have their roots in the constant striving of the mind for a larger and more inclusive unity, in which differences will be reconciled, and abnormalities will vanish."[413]

Like Holmes, Cardozo rejects the common view that judicial closure is inherent to the legal materials, suggesting rather that is as a product of the striving of the mind for comprehensive coherence.[414] This passage is noteworthy also for the intimation that the judge's mental process entails changes in the legal materials: on route to global unity, differences are reconciled and abnormalities vanish. This description comes very close to the notion of restructuring the legal materials.

The intimate relationship between structural coherence and the restructuring of legal materials is highlighted also by Llewellyn:

> For "systems" seek to create order, seeking it even where there is no right order, as is always the case. The material to be brought within a "system" is never fully amenable to order, mainly in the sense that it can be organized in a variety of ways, each of which is partly apt. The creator of a system, acting on the basis of his own generic insight, creates normative order but creates it at the expense of descriptive perfection, of full truth. . . . But those facts to which he does not do justice will necessarily just be refashioned later in the image of his presentation. Only in part, then, does the system serve the facts; in part, it also aims to control them.[415]

As Llewellyn suggests, normative order rarely exists spontaneously. Factual propositions that do not naturally fit into the systemic order will be refashioned in the image of the structure.

The restructuring of legal materials is central to the decision making process in Duncan Kennedy's phenomenological account of judging. The

412. Hutcheson, *supra* note 23, at 276. A different kind of mental transformation of the legal materials was described by Judge Kaufman as "the judge and the law become one." Kaufman, *supra* note 65, at 12.

413. CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 50.

414. Elsewhere Cardozo stated "[t]he quest for certainty responds to a very deep-seated impulse in the soul" of the legal community. CARDOZO, *Jurisprudence*, *supra* note 5, at 9.

415. LLEWELLYN, CASE LAW, *supra* note 9, at 63. Llewellyn also stated: "[A] case comes out one way or the other depending on how the fact situation is treated. . . . [T]he facts of the case undergo reshaping as the decision is being made." *Id.* at 52-53.

goal of the judge's reasoning is to "recast the field" so as to generate an image of legal necessity.[416] Many of the "moves" Kennedy's judge makes resemble mechanisms mentioned both in the psychological and the jurisprudential literature.[417] Jack Balkin explains that in the process of interpreting law we are susceptible to be *co-opted* by it; that is, to tailor our beliefs so as to match a desired perception of the materials.[418] We now turn to examine the three types of methods of restructuring as they appear in legal theory.

Recall that *gate keeping* is the means by which the cognitive system determines which propositions and inferences are included in the decision and which are excluded from it. At the particular level of gate keeping, a common method is the selective presentation of the case's facts. While some judges describe this phenomenon as merely a rhetorical means to "impel the reader towards their conclusion,"[419] others see it as something more inherent to the decision making process. Frank explained that a judge will often "view the evidence in such a way that the 'facts' reported by him, combined with those traditional rules, will justify the results which he announces."[420] Frank emphasizes that this phenomenon is not ill-intended nor is it limited to judging: one "should remember that with judges this process is usually unconscious and that, however unwise it may be, upright men in other fields employ it, and sometimes knowingly."[421]

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416. *See* Kennedy, *Freedom and Constraint*, *supra* note 113, at 542.

417. Frank Michelman states that every legal practitioner is familiar with interpretive processes in which "the meaning of the rule emerges, develops, and changes in the course of applying it to cases." Frank I. Michelman, *The Supreme Court, 1985 Term, Foreword, Traces of Self-Government*, 100 HARV. L. REV. 4, 28-29 (1986).

418. Balkin states: "[O]ur need to make the law make sense so that we can apply it may lead to changes in our own beliefs that facilitate our conclusion that the law is coherent." Balkin, *supra* note 110, at 163.

419. *See* Wald, *Rhetoric of Results*, *supra* note 65, at 1386, 1389.

420. FRANK, MODERN MIND, *supra* note 22, at 145. Frank adds that the judge "unconsciously selects those facts which, in combination of the rules of law which he considers to be pertinent, will make 'logical' his decision." *Id.*

421. *Id.* Similarly, Llewellyn states that

> a raw fact situation cannot be classified without shunting the bulk of facts off to one side. . . . [W]hen studying court cases, one generally gets to see only a *single, officially presented statement of the facts*, if one takes this official statement as the basis for one's knowledge and criticism of the case . . . the "application" of the legal rule will seem deceptively simple. In the very determination of the facts, artful—even artificial—conclusions and deductions have been drawn.

LLEWELLYN, CASE LAW, *supra* note 9, at 54. On the selective use of facts in the Gobitis case, see Danzig, *supra* note 9, at 717.

Take for example the *Ratzlaf* case, where the defendant was charged with the illicit structuring of a financial transaction. In Justice Blackmun's dissenting opinion, Ratzlaf is described as an active and willful agent; it was Ratzlaf who initiated the structuring of the deal and who had the most to gain from it.[422] The majority's account of Ratzlaf's conduct in its acquitting opinion, however, is considerably less condemning. The majority's opinion fails to mention that it was Ratzlaf who initiated the transaction and who had the most to gain from it.[423] This omission is significant to the judicial decision, not only because it allows for a relatively benign portrayal of the defendant but, more importantly, because concealing his actions obfuscates the criminal knowledge that could be attributed to him.[424] The majority's omission is particularly strange since the appellant conceded in his own brief that it was he who insisted on structuring the deal.[425]

Gate keeping can also take place at the level of individual inferences or inference-chains. Recall that of the eight inference chains in the partial dilemma-set of the *Ratzlaf* case (depicted in Figure 6), two were not

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422. Ratzlaf v. United States, 510 U.S. 135, 150-62 (1994) (Blackmun, J., dissenting). According to the dissenting opinion, Ratzlaf arrived at the casino with a shopping bag full of cash; he told the casino personnel that he did not want a written report of the payment. Then, he proceeded to visit several banks in the area, at times trying to buy two checks. Afterwards, he returned to the casino and paid back $76,000 of his debt. Ratzlaf subsequently obtained three additional checks through third parties and, together with his wife, purchased five more checks. *Id.* at 150 (Blackmun, J., dissenting).

423. The majority opinion tells that Ratzlaf came to the casino to pay his debt, where he was first informed of the reporting requirement. "The casino helpfully placed a limousine at Ratzlaf's disposal, and assigned an employee to accompany him to banks in the vicinity. Informed that banks, too, are required to report cash transactions in excess of $10,000, Ratzlaf purchased cashier's checks." *Id.* Note the passive role played by Ratzlaf in this factual account. According to one possible reading of the opaque description, Ratzlaf could have been a passive and misfortunate individual caught in the clutch of shady creditors.

424. In response to the dissenters' allegation that the majority decision will render future prosecution impossible, the majority explained, "a jury may, of course, find the requisite knowledge . . . by drawing reasonable inferences from the evidence of defendant's conduct." *Id.* at 149 n.19.

In addition, the majority opinion added some facts that colored the appellant in a positive light even though they were not directly relevant to the case. The majority opinion states "[t]he Government does not assert that Ratzlaf obtained the cash used in any of the transactions relevant here in other than a lawful manner." *Id.* at 139 n.4; *see also id.* at 145 n.11.

425. In Ratzlaf's brief, it is stated that the structuring was a result of "his insistence that the casino not make any written report." *See* Brief for Petitioner at 5, Ratzlaf v. United States, 510 U.S. 135 (1994) (No. 92-1196).

matched by reciprocal propositions.[426] The majority included a reference to the Money Laundering Control Act of 1986, from which the Justices inferred the proposition: "[h]ad Congress wished to dispense with the ['willfulness'] requirement, it could have [done so here] . . . ."[427] This statutory source and the proposition that is inferred from it are not included in the dissent's conclusion-set. Similarly, the dissent's dilemma-set includes a proposition based on the 1992 Anti Money Laundering Act, from which the dissenters infer that Congress intended no special knowledge.[428] Both majority and dissenting Justices were fully aware of both of these sources and the respective propositions, but each opinion opened the gate only to the inferences that cohered with their respective conclusion-sets and excluded those that did not.

At the general level, gate keeping can be effected by *framing* the case in some particular fashion. The framing of a question can have a significant influence on the legal decision because it can affect the way in which the premises, the inference-mediators, and the standards of proof are determined. For example, in the case of *Everson v. Board of Education*,[429] which dealt with the constitutionality of government funding for parochial private schools, Justice Black's majority opinion defined the issue generally: whether financial aid ought to be given to private schools. Justice Jackson's dissent took a narrower view of the question, treating it as the funding of a Catholic school.[430] The opinion follows automatically from the way the question is framed. Duncan Kennedy provides an example of how a particular labor dispute can be framed as a contractual issue, a free speech issue, or a tort issue, each invoking disparate doctrinal treatment.[431]

The second general type of modification, *bolstering*, refers to partial changes in the character of propositions in the network. Different facets of the propositions are emphasized so as to be brought into coherence within a given set of arguments. Bolstering typically amounts to the reinterpretation or biased evaluation that engender somewhat different propositions, resulting in different implications for the decision. At times, the changes are

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426. *See supra* note 269 and accompanying text (two unmatched chains of inference).

427. *Ratzlaf*, 510 U.S. at 146.

428. *Id.* at 160.

429. Everson v. Board of Education, 330 U.S. 1 (1947).

430. *See* L. H. LARUE, CONSTITUTIONAL LAW AS FICTION: NARRATIVE IN THE RHETORIC OF AUTHORITY 28 (1995).

431. *See* Kennedy, *Freedom and Constraint*, *supra* note 113, at 523-26; *see also* KENNEDY, CRITIQUE OF ADJUDICATION, *supra* note 55, at 140-41.

extreme, amounting to a redefinition, or distortion of the object. Bolstering is also used to change the strength of inference-mediators.

The notion of bolstering is quite familiar in legal scholarship. Judges have frequently acknowledged that they bolster facts. Cardozo stated unabashedly that a judge "must" permit himself "a certain margin of misstatement."[432] Judge Mikva tells us that Holmes, too, "was not above shaping or neglecting certain facts" to preserve his preferred analysis.[433] Judge Wald states that appellate judges "enjoy great leeway to massage and mold the facts," so that stories told by the opposing opinions resemble a replay of Rashomon—"two opinions talking about totally different cases."[434] Llewellyn observed that a case "comes out one way or the other depending on how the fact situation is treated. . . . [T]he facts of the case undergo reshaping as the decision is being made."[435]

Bolstering is manifest also in the ways judges read doctrine, standards of review, precedents, and the like.[436] Edward Levi speaks of the "misuse and misunderstanding of words" in the development of the law.[437] Kennedy describes the closing of legal gaps by means of restating facts, holdings, rules, policies, and stereotypes, adding information to the story, and altering time frames.[438] Llewellyn speaks of the "recoloring" of the legal concepts as a first step towards redirecting existing doctrine.[439] A classical

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432. BENJAMIN N. CARDOZO, *Law and Literature, in* SELECTED WRITINGS, *supra* note 5, at 339, 341 [hereinafter CARDOZO, *Law and Literature*].

433. Abner J. Mikva, *For Whom Judges Write*, 61 S. CAL. L. REV. 1357, 1363 (1988). Judge Mikva serves on the United States Court of Appeals for the District of Columbia Circuit.

434. *See* Wald, *Rhetoric of Results*, *supra* note 65, at 1386. In another example, *Kassel v. Consolidated Freightways Corp.*, 450 U.S. 662 (1981), the Justices again discussed a factual determination that was central to the decision. While the majority stated "[t]he District Court found that the 'evidence clearly establishes [the respondent's claim],'" *id.* at 667, the dissent claimed "there was sufficient evidence presented at trial to support [the petitioner's position], and nothing in [the respondent's] evidence undermines this conclusion." *Id.* at 696 (Rehnquist, J., dissenting); *see also* Kennedy, *Freedom and Constraint*, *supra* note 113, at 532, 537.

435. LLEWELLYN, CASE LAW, *supra* note 9, at 52-53.

436. As Judge Wald explains, there is considerable leeway in the framing of standards of review so that each way is likely to lead to different results. *See* Wald, *Rhetoric of Results*, *supra* note 65, at 1391.

437. EDWARD H. LEVI, AN INTRODUCTION TO LEGAL REASONING 9 (1949).

438. *See* Kennedy, *Freedom and Constraint*, *supra* note 113, at 532-38.

439. *See* LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 114. On the overriding of plain meaning of texts, see Eskridge & Frickey, *supra* note 54, at 356.

demonstration of the effect of bolstering in legal argument is offered by Karl Llewellyn, regarding the handling of precedent. Llewellyn presented a selection of techniques that are "in current, accepted, unchallenged use" in appellate adjudication. He presents a list of sixty-four techniques, which include: following precedent, expanding or redirecting precedent, avoiding precedent, distinguishing precedent, and killing precedent. Different results are reached by applying a different technique to the same precedent in a given cause.[440] In a previous article, Llewellyn reports that he monitored how a reputable state court treated its own prior cases. In a single day he observed twenty-six different ways of handling precedent, all of which he found to be sound and correct. Within some of these opinions, three to six different ways were applied.[441] Llewellyn's overall support for the one-right-answer position notwithstanding, he states: "The Multiplicity is real, and it is vital. It disposes of all questions of 'control' or dictation by precedent."[442]

Most legal concepts lend themselves to more than a single meaning, and there is almost always scope for bolstering the meaning one way or the other. Take for example the two familiar facets of the institution "legislature."[443] As a political-philosophical concept, the legislature is the almost sovereign organ of the state. This lofty institution consists of members who are generally perceived as power-seeking individuals, engaged primarily in logrolling and coalition-building. Thus, when a court examines the legislative intent behind a statute, it can focus either on *the legislature* or on *the members* of the institution. Indeed, we find that the same court, even the same judge or Justice, can treat the legislature in some instances as the creator of the law, whose intention is paramount,[444] whereas, in other instances, the same body is treated as a motley

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440. *See* LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 77-79.

441. Karl N. Llewellyn, *Remarks on the Theory of Appellate Decision and the Rules or Canons About How Statutes Are to Be Construed*, 3 VAND. L. REV. 395, 396 (1950) [hereinafter Llewellyn, *Remarks*].

442. *See* LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 77.

443. This analysis of the judicial treatment of the legislature is borrowed from Yochai Benkler, Justice Scalia, Practice of Text-Based Opinions in Statutory Cases, A Tinker's Toolbox (unpublished manuscript, on file with author).

444. *See, e.g.*, Pennsylvania v. Union Gas Co., 491 U.S. 1 (1989) (Scalia, J., concurring in part and dissenting in part).

congregation of politicians whose actions are better thwarted than enforced.[445]

The *Ratzlaf* case provides some conspicuous manifestations of bolstering. Recall that in *Ratzlaf*, every precedent, statute, and legislative report was taken to cohere with the respective decisions.[446] By applying the partial dilemma-set (depicted in Figure 6), we see, for example, how the Justices treated the 1986 Senate Report that accompanied the legislation. The Senate Report expressed an intent to codify *United States* v. *Tobon-Builes*.[447] That decision, the *Ratzlaf* dissenters explained, upheld a conviction for financial structuring without establishing any requirement of special criminal knowledge.[448] The majority opinion, however, interpreted the precedent differently: it distinguished the precedent from the case at hand by stating that in *Tobon-Builes* the issue was not of criminal knowledge, but whether there was any duty to report the transaction in the first place. The Court inferred that the question of *mens rea* was not decided authoritatively.[449] The majority opinion also bolstered the grammatical significance of the words "in addition."[450] From the fact that the Senate

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445. *See, e.g.*, Green v. Bock Laundry Mach. Co., 490 U.S. 504 (1989) (Scalia, J., concurring). This latter view is manifested in Justice Scalia's proposed reasons for a legislator's vote:

> He may have thought the bill would provide jobs for his district, or may have wanted to make amends with a faction of his party he had alienated on another vote, or he may have been a close friend of the bill's sponsor, or he may have been repaying a favor he owed the Majority Leader, or he may have hoped the Governor would appreciate his vote and make a fundraising appearance for him, or he may have been pressured to vote for a bill he disliked by a wealthy contributor or a flood of constituent mail, or he may have been seeking favorable publicity, or he may have been reluctant to hurt the feelings of a loyal staff member who worked on the bill, or he may have been settling an old score with a legislator who opposed the bill, or he may have been mad at his wife who opposed the bill, or he may have been intoxicated and entirely *un*motivated when the vote was called, or he may have accidentally voted 'yes' instead of 'no'. . . .

Edwards v. Aguillard, 482 U.S. 578, 637 (1987) (Scalia, J., dissenting).

446. *See supra* Part III.A.2.

447. 706 F.2d 1092 (11th Cir. 1983).

448. *See* Ratzlaf v. United States, 510 U.S. 135, 157-58 (1994) (Blackmun, J., dissenting).

449. *See id.* at 662 n.17 (Ginsburg, J.).

450. The Senate Report stated that

> [the antistructuring provision] would codify *Tobon-Builes* and like cases and would negate the effect of *Anzalone*, *Varbel* and *Denemark*. It would expressly subject to potential liability a person who causes or attempts to cause a financial institution to fail to file a required report or who causes a financial institution to file a required

Report states that "in addition" to codifying *Tobon-Builes* it would "create the offense of structuring," the majority inferred that the codification of the precedent meant something other than creating the structuring offense, but there is no mention by the majority of what that something might be. The dissenters' interpretation of the term was quite different.[451]

The third type of cognitive restructuring, *rule selection*, pertains to the ways in which legal propositions are related to one another, that is, the inference-mediators that lead from one proposition to the next, and ultimately to the decision. In most legal controversies, as in many other walks of life,[452] there are multiple rules available, competing for a given inferential task. This form of modification is performed by way of selecting among the available rules, and thus influencing the outcome of the inferences. The significance of rule selection is well recognized in jurisprudence, and it has been discussed amongst others by Pound,[453] Frank,[454] and, most powerfully, by Llewellyn.[455]

Llewellyn's best known work in this regard is his exposition of dualism in methods of statutory interpretation. Llewellyn demonstrates that for almost every question of statutory interpretation there are two opposing canons of interpretation available.[456] Each pair can be described as

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> report that contains material omissions or misstatements of fact. *In addition*, the proposed amendment would create the offense of structuring a transaction to evade the reporting requirements, without regard to whether an individual transaction is, itself, reportable under the Bank Secrecy Act.

S. REP. NO. 99-433, at 22 (1986) (emphasis added).

451. The dissenters explained: "[T]he phrase 'in addition' plainly refers to the previous sentence in the Report, which states that § 5324 'would expressly subject to potential liability a person who causes . . . a financial institution [to file a faulty report]. The 'codification' of *Tobon-Builes* encompasses both sentences, and thus all three subsections of the original § 5324." *Ratzlaf*, 510 U.S. at 158 n.10.

452. *See supra* note 338-40.

453. Roscoe Pound, *The Theory of Judicial Decision*, 36 HARV. L. REV. 940, 951 (1923). Pound suggested that one of the ways the intuition of the judge affects the decision is by "selection of grounds of decision." *Id.*

454. FRANK, MODERN MIND, *supra* note 22, at 145. For Frank, the unconscious selection of legal materials in the construction of the decision consisted both of facts and of rules. *Id.*

455. LLEWELLYN, CASE LAW, *supra* note 9, at 91. Llewellyn stated "black-letter scholars emphasize those decisions that harmonize with their version of the rule, revealing a marked tendency to look down the wrong end of the telescope in assessing the number and significance of contrary decisions." *Id.*

456. Llewellyn, *Remarks, supra* note 441, at 401-06. For a similar arrangement of antagonistic pairs of arguments, see Duncan Kennedy, *A Semiotics of Legal Argument*, 42 SYRACUSE L. REV. 75 (1991); Kennedy, *Freedom and Constraint, supra* note 113, at 534.

consisting of a "thrust" rule and a matching "parry" rule. He identifies twenty-eight such pairs, and points out astutely that since either rule can be applied as readily as its reciprocal, canons do not decide cases by themselves: every construction must thus "be sold, essentially, by means other than the use of the canon."[457] This statement by Llewellyn captures an essential insight of the psychological model. This model does not dispute the contribution of rules to judicial decisions; but it contends that rules cannot do the job by themselves (and neither can their exceptions). The applicability of a rule is determined both by the force of the rule itself and by forces induced on it by the global structure. The crucial question then becomes: is it the rule or is it the exception that coheres with the dominant subset of inferences.

Llewellyn's critique is firmly endorsed by Judge Ruggero Aldisert. In his criticism of theories of statutory construction, Judge Aldisert describes rules of interpretation as "unfortunate contrivances." Judge Aldisert explains: "Whenever I encounter the use of a canon even in the opinions of my most distinguished judicial colleagues, I am tempted to smile because Llewellyn has convinced me that for every thrust there is an equally important parry."[458] Bearing this viewpoint in mind, Judge Aldisert, it would appear, could not help but smile when reading the *Ratzlaf* opinion. Indeed, three of Llewellyn's identified pairs of rules compete vigorously in the *Ratzlaf* opinions. Each of these rules is presented in the opinions in isolation, without reference to their reciprocals, as if they governed the questions exclusively. Take, for example, Llewellyn's first pair: "A statute cannot go beyond its text;" but "[t]o affect its purpose a statute may be implemented beyond its text." The majority in *Ratzlaf* stated flatly that interpretation should be contextual, whereas the dissent stated that it should be textual.[459] Another pair contains the canons: "If language is plain and unambiguous it must be given effect;" but "[n]ot when literal interpretation would lead to absurd or mischievous consequences or thwart manifest purpose." The *Ratzlaf* dissenters argued that the majority's interpretation

457. Llewellyn, *Remarks, supra* note 441, at 401.

458. Judge Aldisert adds that

> [i]t is difficult even to be charitable when evaluating the dismal failings of these canons. Their various authors, albeit distinguished judicial scholars and legal philosophers, seemed blind to the truism that every rule has its antinomy. By 1950, most canons were so enervated by contradictions that Karl Llewellyn's taxonomic treatment *Thrust But Parry* deftly eviscerated them for all practical purposes.

Aldisert, *supra* note 46, at 21. Judge Aldisert is a senior judge, and former chief judge, of the United States Court of Appeals for the Third Circuit.

459. *See* Figures 8 and 9, respectively.

would nullify the effect of the statute, whereas the majority found no such danger and proceeded to apply the law according to their normal interpretation of it. Third, we see the respective *Ratzlaf* opinions echoing Llewellyn's canons: "Every word and clause must be given effect;" but "[i]f inadvertently inserted or if repugnant to the rest of the statute, they may be rejected as surplusage."

Rule selection is pertinent to the pursuit of the "plain meaning" of statutory texts, a search brought to the foreground by the recent emergence of text-based jurisprudence. A common and understandable way of finding the plain meaning of terms is to look them up in dictionaries. From observing judges at work, it soon becomes clear that the technical and seemingly non-controversial dictionary search is highly contingent. As Benkler has argued, judges can, and do, choose among a variety of both legal and general dictionaries.[460] Much like with canons of interpretation, there are no known criteria to determine the suitability of dictionary entries to legal questions.

Testing the Validity of the Decision. There is support in legal theory for the idea that judges test their decisions to ensure that they do not exceed the boundaries of legal argument. Some judges report that on occasion, they find a decision that has wandered too far, or the decision simply "won't write."[461] As Judge Rubin explains, that happens when the judge realizes that the opinion "does not follow accepted rules and is therefore arbitrary in result or superficial in reasoning."[462] Frank explained that prior to making the final decision, the judge checks to see whether the conclusion, "without unfair distortion of the facts, can be linked with generalized points of view theretofore acceptable. If none such are discoverable, he is forced to consider more acutely whether his tentative conclusion is wise."[463] Similarly, Dewey explained that "general legal rules and principles are working hypotheses, needing to be constantly tested by the way in which

460. *See* Benkler, *supra* note 443.

461. *See* Alvin Rubin, *Doctrine in Decision-Making: Rationale or Rationalization*, UTAH L. REV. 357, 365 (1987). Judge Rubin is a member of United States Court of Appeals for the Fifth Circuit. *See also* Roger J. Traynor, *Some Open Questions on the Work of State Appellate Courts*, 24 U. CHI. L. REV. 211, 218 (1957). Judge Traynor is the retired chief justice of the California Supreme Court.

462. *See* Rubin, *supra* note 461, at 365.

463. FRANK, MODERN MIND, *supra* note 22, at 140-41.

they work out in application to concrete situations."[464] Llewellyn suggested that the making of the decision includes "testing the decision against experience and against acceptability."[465]

The Point of the Choice and the Effects of the Choice. The notion that decisions are made by means of selecting between two alternative mental models is manifested in the fact that judicial decisions seem to be products of competition, not of compromise. Cardozo explains: "If two extremes present themselves as possible solutions of any controversy, we do not reach the true solution by rejecting both extremes as certainly unacceptable, and seeking a middle course. There will be many situations in which one of the extremes will mark the course to be selected."[466] The flexibility offered by the construction of multiple mental models is demonstrated by Llewellyn. He explained: "on every point there are at least two opposite tendencies: the legal reasoning employed will deem one 'correct' and the other 'incorrect' as the case at hand may require. Each approach then is capable of doing a 180-degree turn when the very same court comes to deal with the same precedent in deciding the very next case on its docket."[467]

This psychological model describes casting the decision as identifying one of the mental models as the winning choice. The decision is determined by the global properties of the stronger mental model. Cardozo described this structural effect as the "architectonics" of a legal case:

> Above and beyond all these are what we may term the architectonics of opinions. The groupings of fact and argument and illustration so as to produce a cumulative and mass effect; these, after all, are the things that count above all others. . . . If these are presented with due proportion and selection, our conclusion ought to follow so naturally and inevitably as almost to prove itself.[468]

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464. Dewey, *supra* note 32, at 26-27.

465. LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 11.

466. CARDOZO, *Paradoxes*, *supra* note 14, at 56.

467. LLEWELLYN, CASE LAW, *supra* note 9, at 50-51; *see also* Eskridge & Frickey, *supra* note 54, at 352.

468. CARDOZO, *Law and Literature*, *supra* note 432, at 352-53. Eskridge and Frickey describe the legal decision by means of a metaphor of a cable, rather than a chain. Following Pierce, they state that

> a cable's strength relies not on that of individual threads, but upon their cumulative strength as they are woven together. Legal arguments are often constructed as chains, but they tend to be more successful when they are cable-like. . . . In many cases of statutory interpretation, of course, the threads will not all run in the same direction.

Since the coherent set of arguments supports one decision while rejecting the opposite one, the decision flows effortlessly from the model, and is almost compelled by it. Coherently constructed sets, Cardozo explains, generate natural and inevitable resolutions. Kennedy explains that constructed fields generate the image of legal necessity. Placing a case in such an "impacted field" seems like a simple exercise in rule application; the case will simply "decide itself."[469]

The Lack of Awareness and Deciding by Hunches. The issue of judges' awareness of their activity has received significant attention in legal writing. Recall that psychological research shows that people are generally unaware of processes such as restructuring materials in the course of making a decision. Some judges have openly admitted that much of their process occurs beyond their awareness. Holmes insisted that "[b]ehind the logical form lies a judgment as to the relative worth and importance of competing legislative grounds, often an inarticulate and unconscious judgment, it is true, and yet the very root and nerve of the whole proceeding."[470] Cardozo admitted that "[m]uch of the process has been unconscious or nearly so. The ends to which courts have addressed themselves, the reasons and motives that have guided them, have often been vaguely felt, intuitively or almost intuitively apprehended, seldom explicitly avowed."[471]

Cardozo also quoted William James' observation that by the end of a thought task, the process itself is already forgotten.[472] This same observation by James was quoted also by Judges Friendly, Hutcheson, and

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The cable metaphor suggests that in these cases the result will depend upon the strongest overall combination of threads.

Eskridge & Frickey, *supra* note 54, at 351.

469. *See* Kennedy, *Freedom and Constraint*, *supra* note 113, at 542. As Wetlaufer describes, after making a choice, the judge assumes a role of quasi-advocate; "the judge-cum-advocate normally writes her opinions within the same rhetorical conventions that are the trademark of the lawyer-with-client." Wetlaufer, *supra* note 52, at 1561.

470. Holmes, *The Path of the Law*, *supra* note 4, at 167.

471. CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 117. He adds: "I have spoken of the forces of which judges avowedly avail to shape the form and content of their judgments. Even these forces are seldom fully in consciousness. They lie so near the surface, however, that their existence and influence are not likely to be disclaimed." *Id.* at 167.

472. *See* CARDOZO, *Paradoxes*, *supra* note 14, at 61. For James' statement, see *supra* note 353 and accompanying text.

Schaefer,[473] as well as by Llewellyn.[474] Similarly, Frank stated, both before and after joining the bench, that the judicial habit of misstating facts and "forcing the balance" are not intentional, but rather "unconscious or inadvertent."[475]

Particularly insightful and instructive is Cardozo's phenomenological characterization of the case as it progresses from conflict to closure. No other account in legal theory seems to better capture the essence of the psychological model, particularly with regard to the crucial, yet subtle, mental transformation that occurs at the moment one of the mental models is chosen as the winning decision:

> The curious thing is that sometimes in the hardest cases, in cases where the misgivings have been greatest at the beginning, they are finally extinguished, and extinguished most completely. I have gone through periods of uncertainty so great, that I have sometimes said to myself, "I shall never be able to vote in this case either one way or the other." Then, suddenly, the fog has lifted. I have reached a stage of mental peace. I know in a vague way that there is doubt whether my conclusion is right. I must needs admit the doubt in view of the travail that I suffered before landing at the haven. I cannot quarrel with any one who refuses to go along with me; and yet, for me, however it may be for others, the judgment reached with so much pain has become the only possible conclusion, the antecedent doubts merged, and finally extinguished, in the calmness of conviction. I have little question that these recurrent stages of agitation and serenity are the common experience of other toilers in fields of intellectual effort.[476]

Note in this account how after so much travail, the decision comes about as a spontaneous lifting of fog. Note also how the question that seemed at first insoluble, is now governed by the only possible conclusion. At this juncture, Cardozo traverses from a state of agitation to serenity, from virtual paralysis to resolution, from uncertainty to conviction.[477] This magnificent

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473. *See* Friendly, *supra* note 368, at 229; Hutcheson, *supra* note 23, at 282; Schaefer, *supra* note 9, at 23.

474. *See* LLEWELLYN, DECIDING APPEALS, *supra* note 26.

475. Frank, *Words and Music*, *supra* note 401, at 1275; *see also* FRANK, MODERN MIND, *supra* note 22, at 145; WASSERSTROM, *supra* note 34, at 17.

476. CARDOZO, *Paradoxes*, *supra* note 14, at 80-81.

477. A similar experience is described by Judge Hand:

> when the case is all in and the turmoil stops, and after he is left alone, things begin to take form. . . . out of the murk of the pattern, emerges his pattern, the expression of what he has seen and what he has therefor[e] made, the impress of the self on the not-

passage was quoted approvingly by Judge Schaefer, who agreed also that this description should be familiar to every judge.[478] Schaefer concludes: "It was actually this experience, I am confident, that was intended to be compressed into the phrase 'judicial hunch.' "[479]

The notion of the hunch, or intuition, has been used by thoughtful judges to describe how they make their choices.[480] In minimizing the role of logic in law, Holmes emphasized the role of the "felt necessities of the times, the prevalent moral and political theories, intuitions of public policy, avowed or unconscious."[481] In his *Lochner* dissent, Holmes supplanted general propositions with a "judgment or intuition more subtle than any articulate major premise."[482] However, it was Judge Hutcheson who elaborated on the phenomenological experience of the hunch:

> I, after canvassing all the available material at my command, and duly cogitating upon it, give my imagination play, and brooding over the cause, wait for the feeling, the hunch—that intuitive flash of understanding which makes the jump spark connection between question and decision, and at the point where the path is darkest for the judicial feet, sheds its light along the way.[483]

It should be noted that Hutcheson insisted that the hunch is distinct from both arbitrariness and unfettered discretion.[484] Rather, it is the way the

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self, upon the hitherto formless material of which he was once but a part and over which he has now become master.

HAND, *supra* note 148, at 36.

478. *See* Schaefer, *supra* note 9, at 23.

479. *Id.*

480. On the notion of the hunch, see discussion *supra* Part III.B.8.

481. *See* HOLMES, *supra* note 1, at 306.

482. *See* Lochner v. New York, 198 U.S. 45, 76 (Holmes, J., dissenting). Elsewhere Holmes stated that "lawyers, like other men, frequently see well enough how they ought to decide on a given state of facts without being very clear as to the ratio decidendi." Oliver Wendell Holmes, Jr., *Codes, and the Arrangement of the Law*, 5 AM. L. REV. 1 (1870), *reprinted in* 44 HARV. L. REV. 725, 725 (1931).

483. Hutcheson, *supra* note 23, at 278. Like Cardozo, Hutcheson insisted that reliance on the hunch is common among judges. *Id.* Hutcheson's metaphor of the hunch lighting up the dark path closely resembles the phenomenological theory's notion of "elucidation." *See supra* note 357.

484. For a view of the hunch as unfettered discretion, see Charles M. Yablon, *Justifying the Judge's Hunch: An Essay on Discretion*, 41 HASTINGS L.J. 231 (1990). Posner, for example, contrasts "pure judicial hunch" with a "well-founded proposition of law." POSNER, JURIS. PROBLEMS, *supra* note 1, at 192; *see also* Francis H. Bohlen, *The Reality of*

greatest scientists, best detectives, best lawyers and best judges make their professional decisions.[485] Cardozo agreed: "The doctrine of the hunch, if viewed as an attempt at psychological analysis, embodies an important truth: it is a vivid and arresting description of one of the stages in the art of thought."[486] A similar opinion was expressed by Frank.[487] The hunch is perceived by Dewey to be a form of making intelligent and serious decisions.[488] Similarly, Fuller explained that intuitive judgment is likely to be the only type of solution to extremely complex thought tasks.[489] It is

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What the Courts Are Doing, *in* LEGAL ESSAYS IN TRIBUTE TO ORRIN KIP MCMURRAY 39, 46 (Max Radin ed., 1935).

485. Hutcheson, *supra* note 23, at 279. Some jurists have described the hunch as similar to the *clicking-in* effect. Judge Friendly spoke of the conclusion "flash[ing] before the shaving-mirror in the morning." Friendly, *supra* note 368, at 230. Judge Hutcheson spoke of the "intuitive flash of understanding," the "jump-spark connection," the "lucky find," and of the "flooding of the brain with vigorous blood of decision." Hutcheson, *supra* note 23, at 278, 281, 287. Llewellyn insisted that by merely applying the right type-situation to a case, the appropriate rule would "thrust toward reasonable simplicity." LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 398. On the *clicking-in* effect, see *supra* notes 357-58.

486. CARDOZO, *Jurisprudence*, *supra* note 5, at 27-28. Cardozo was quick to defend Hutcheson from the charges of nihilism:

> I think there is a good deal of misapprehension as to [the hunch's] significance for philosophy of law. The thought seems to be that to prove the value of the hunch is to establish the empire of mere feeling or emotion, of arbitrary preference, and by the same token to disprove the value of conceptions, rules and principles, the value of all logic, till we are driven, like the sophist in the Greek comedy, to proclaim that Whirl is King . . . . If we conceive of [the hunch] as the summary of the complete judicial process, it is one-sided and misleading.

Id. at 26, 28.

487. Frank stated that the judge's "ineffable intuition cannot be wholly set down in an *R* [rule] and an *F* [fact]. There are overtones inexpressible in words." FRANK, COURTS ON TRIAL, *supra* note 6, at 174.

488. Dewey explained:

> Long brooding over conditions, intimate contact associated with keen interest, thorough absorption in a multiplicity of allied experiences, tend to bring about those judgments which we then call 'intuitive'; but they are true judgments, because they are based on intelligent selection and estimation, with solution of a problem as the controlling standard.

JOHN DEWEY, HOW WE THINK: A RESTATEMENT OF THE RELATION OF REFLECTIVE THINKING TO THE EDUCATIVE PROCESS 124 (1933), *quoted in* POSNER, JURIS. PROBLEMS, *supra* note 1, at 111.

489. Fuller states that to solve polycentric problems, "a good deal of 'intuition' is indispensable." Fuller, *supra* note 77, at 398. Fuller adds that

> [t]he suggestion that polycentric problems are often solved by a kind of 'managerial intuition' should not be taken to imply that . . . they resist rational solution . . . . One cannot construct a bridge by conducting successive separate arguments concerning

apparent that these judges and scholars encountered what psychologists explain as the relative inaccessibility of procedural knowledge. They candidly offered the natural, and probably most accurate account people can give for mental tasks of this sort.

IV. DISCUSSION: WHAT DOES THIS MODEL MEAN FOR LAW?

It is now time to discuss what might be learned from this framework about judicial reasoning and its implications for legal discourse. This psychological model describes judicial decision making as driven by the restructuring of the legal materials in the judge's mind. This mental restructuring spreads apart the arguments that support the competing decisions, and thus yields a coherent decision. It is suggested that this cognitive transformation towards coherent sets is an adequate way—perhaps the best, and perhaps even the only way—to solve complex thought tasks of this kind. However, incidental to its facilitative effect, this process biases the judge's mental representation of the legal dispute. This psychological artifact of coherence is then reported in the judicial opinion, and it underlies the judicial style of closure.

To appreciate the potential contribution of the psychological model to legal theory, I will compare the model's insights with both mainstream and critical schools in American jurisprudence. I will suggest that the current practices of judicial reasoning fail to meet the aspirations of ideal jurisprudence; rather, the ubiquitous style of closure engenders an impoverished discourse that is purchased at a high cost. At the same time, however, judicial reasoning is substantially *more* genuine than claimed by critics of mainstream jurisprudence. Judicial opinions are not always mere rationalizations for decisions based on ulterior, primarily political, considerations. Finally, I make a temperate suggestion for an alternative style of judging. But first, I briefly review the principal features of the psychological model.

A. Coherence Bias in Judicial Opinions: A Brief Review

The model offered in this Article resorts to scientific psychology to illuminate some unfamiliar facets of the judicial decision making process. The model has attempted to explain the phenomenon of closure that typifies

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the proper angle for every pair of intersecting girdles. One must deal with the whole structure.

Id. at 403; *see also* Pound, *supra* note 453, at 951.

judicial opinions, namely, the constraint judges report, the singular correctness of the decisions, the coherence of the arguments, and the sense of certainty with which opinions are written.

The model focuses on cases in which the judge is assumed to have low stakes in the decision's outcome. It examines the mental processes of judges who are presumed to be neutral brokers, striving to find the decision that is best supported by legal argument. Recall also the assumption in the first part of the decision making process: the judge dedicates her mental efforts to finding the best decision; after that point, she seeks primarily to rationalize the already-made decision and to supplement it with additional authorities. The model refers primarily to the former phase—that of evaluating and integrating the reasons that support the competing alternatives so as to determine the decision.

This psychological approach views legal argument as a form of human reasoning. Legal argumentation is treated as the making of inferences—described generally as the mental operation by which we generate propositions on the basis of some existing knowledge. Legal arguments, thus, are viewed as inferences that lead to propositions, which ultimately have implications for decisions. Judicial decisions, then, are determined by the strength of the inferred propositions. The task entails inferring propositions and integrating their implications for the decision. Judicial opinions are textual reports of these inferences and propositions.

The theoretical core of the suggested model is as follows: legal questions are cognitively represented as connectionist networks, in which the relevant facts, concepts, principles and vying outcomes are all interconnected by means of inferences. Each such inference constitutes a constraint on the network. The decision making process is governed by a cognitive mechanism of constraint satisfaction. This mechanism advances the network towards a settled state in which the constraining legal arguments reach their highest level of acceptability. This occurs when the network attains a high level of coherence. This process is operationalized by means of constructing mental models, each of which corresponds to the available outcomes. The constraint satisfaction mechanism restructures the legal materials of which the mental models are assembled so as to drive the models towards their highest levels of coherence. This restructuring spreads the legal arguments in each of the models into two sets of inferences: one coherent set of favorably evaluated propositions and one suppressed set. The judge ultimately makes the decision by adopting the more coherent model and ignoring the competing one.

This coherent mental representation has a crucial effect on the judge's decision. With all, or almost all, of the strong arguments supporting one decision, the judge feels compelled to cast her vote in accordance with the unequivocal inferential support. In the perceived absence of any viable alternative, the judge experiences the decision to be singularly correct, and thus also feels certain about the choice. The written opinion then flows from this mental representation. Opinions convey closure because that is what the judge's mental model looks like. In other words, judges report constraint and convey a confident belief in the singular correctness of the decision because such accounts accurately reflect judges' mental representations of disputes.

It is important to note that these cognitive processes occur, for the most part, outside the judge's awareness. As a consequence, the judge's phenomenological experience of being constrained by the law, and the perception of the decision as being coherent, certain, and singularly correct are by and large authentic. Thus, the sense of closure conveyed in the judicial decision is not merely a means of persuasion; it reflects a genuinely experienced mental state.

Most rational discourses are premised on a directional nature of reasoning. Inferences are generally perceived to progress from some premise or datum towards a proposition. Legal reasoning is no exception. Indeed, it is an earmark of legal discourse that legal decisions are derived from law's general prescriptions: progressing *from* authoritative texts, facts and principles *through* settled forms of legal argument *towards* legal conclusions. It is precisely this vectoral characteristic that gives legal discourse its principled, general, non-arbitrary aura. The psychological model offered in this Article does not dispute that the judicial decision is influenced by this classical operation of legal argument. It is suggested here, however, that judicial reasoning is also influenced by the restructuring of the legal materials, which translates pressure generated at the structure's global stratum into changes imposed upon the individual inferences. The pressures flow *backwards*, so to speak, *from* the decision's conclusion *through* the inferential links *towards* the authoritative texts, facts and principles. In sum, the legal materials generate inferences that lead towards a certain conclusion, while at the same time the cognitive system transforms these very materials, so as to attain coherent decisions. Judicial decision making operates simultaneously via both forward- and backward-reasoning, each of which occurs at different levels of awareness. Hence we say that it is a *bi-directional reasoning* process. These two vectors lend judging its dialectical image: the one vector embodies constraint while the other enables freedom.

B. The Psychological Model and Ideal Jurisprudence

There are some important similarities between ideal theories of judging, such as that offered by Dworkin, and this psychological model.[490] Dworkin's theory of *Law as Integrity* is a sophisticated version of ideal jurisprudence.[491] His conception of judging is not as mechanical, formal and serial as practiced in many judicial opinions. Indeed, it has a Gestaltian, bi-directional flavor: interpretation is a creative process during which the purpose and object interact and change through the choices of the interpreter.[492] Legal arguments are rarely deterministic: they are much like *soft constraints*.[493] Dworkin insightfully blurs the dichotomy between the judicial metaphors of *finders* and *makers* of law: judges "do both and neither."[494] There is significant similarity in the way ideal jurisprudence and the psychological model portray the transformation of the initial state of conflict and contradiction into that of closure. Both accounts describe the judge constructing alternative hypotheses and oscillating among them, progressively narrowing them down until just one remains.[495]

It is important to note that the notion of coherence in Dworkin's theory is not merely descriptive, nor is it a lofty desideratum; it is prescriptive through and through. The decision must endorse the interpretation that best justifies the extant legal practice and institutions as a coherent scheme of principle.[496] Dworkin states that law as integrity "demands" that the public standards of the community be both made and seen, so far as this is possible, to express a "single, coherent scheme of justice and fairness." Judges are asked to assume that the law is structured by a coherent set of principles; the theory of adjudication "respects the ambition integrity assumes." Hercules is

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490. On methodological discrepancies between Dworkin's theory of judging and the psychological model, see *supra* notes 121-24 and accompanying text.

491. *See* DWORKIN, *supra* note 74.

492. *See id.* at 48-52.

493. *See id.* at 217-19, 257. On soft constraints in connectionist networks, see *supra* notes 233-34 and accompanying text.

494. *See* DWORKIN, *supra* note 74, at 225.

495. *See* DWORKIN, *Hard Cases*, *in* TAKING RIGHTS SERIOUSLY, *supra* note 126, at 102; *see also* DWORKIN, *supra* note 74, at 240-50.

496. The notion of coherence is central to both accounts. Recall that in this model, we define coherence as states in which propositions that have implications for the same outcome are similarly accepted. Dworkin's conception of coherence is what was described above as "external" coherence, and, thus, differs from coherence as a psychological phenomenon. *See supra* text accompanying note 99.

plainly "commanded" to see law as a coherent and structured whole.[497] The justification must "fit enough" of the standing practice to be considered interpreting it, rather than inventing a new one,[498] but it cannot criticize too much of the practice. For Dworkin, this is a serious limitation; a theory that criticizes too much fails to achieve the adjudicative purpose.[499]

But the seam connecting Dworkin's prescriptive theory and descriptive account cannot hold. The ideal picture of Hercules finding coherent schemes underlying and unifying legal practices might indeed make for a fine judicial ideal, but there is not much evidence to support this phenomenon as a valid description of the process. Dworkin lays out in a detailed fashion how Hercules goes about finding the most coherent scheme: he engages in a methodical process of fitting, justifying and evaluating the competing hypotheses until the coherent theory is found. But since the theory is constructed entirely on an internal perspective,[500] the account is necessarily abstract and opaque. The reader remains ignorant as to *how* people fit, justify and evaluate alternatives, and little attention is paid to the limitations of performing these mental tasks. However, Dworkin would dismiss the notion that the psychology of decision making has an influence on judicial reasoning. Nonetheless, he assures us that for the most part, law as integrity works well.[501] Hercules manages to simulate the work of a single author of the legal practice, and actual judges can imitate him with some success.[502] Law as integrity is an optimistic endeavor;[503] it is the idea of "law worked pure."[504]

The law made in cases such as *Ratzlaf* bears little resemblance to Dworkin's idealized judging.[505] Recall that the majority opinion consists of

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497. *See* DWORKIN, *supra* note 74, at 219, 243, 440.

498. *See* DWORKIN, *supra* note 74, at 66.

499. Dworkin states: "[N]o theory can count as an adequate justification of institutional history unless it provides a good fit with that history; it must not expose more than a low threshold number of decisions, particularly recent decisions, as mistakes." DWORKIN, *A Reply to Critics*, *in* TAKING RIGHTS SERIOUSLY, *supra* note 126, at 291, 340. A coherent interpretation may "depart from a narrow line of past decisions." DWORKIN, *supra* note 72, at 219.

500. *See supra* notes 121-22 (discussing the internal perspective).

501. Dworkin explains that the principal of integrity "does have the first word, and normally there is nothing to add to what it says." DWORKIN, *supra* note 74, at 219; *see also id.* at 228, 411.

502. *See* DWORKIN, *supra* note 74, at 245.

503. *Id.* at 218.

504. *Id.* at 400.

505. For an analysis of the *Ratzlaf* case, see *supra* Part III.A.

sixty-four inferred propositions, that converge into seventeen inference paths, which ultimately lead to the six branches of the decision, which lead to the decision itself. The dissenting opinion contains sixty-one inferences converging in a similar way. The precise number of inferences mustered by the opinion is of little significance, though it is very significant that these multitudes of inferences are absolutely coherent. That is, every inference contained in each of the opinions supports the respective conclusion, and thus coheres with every single one of the inferences made in the same opinion and conflicts with all those made in the other one.[506] The contrariness and irreconcilability of the opinions is astounding. One side employs a textual-based theory of interpretation and the other resorts to a contextual one. Each opinion yields an opposite reading of the legislative history. The seven cases cited in both opinions are similarly understood to warrant diametrically opposed propositions. One opinion applies the rule of ignorance is no defense and the exception to the rule of lenity, whereas the other side applies the latter rule and the exception to the former. One opinion applies a standard of "nefariousness" while the other dismisses its relevance. Each of the opinions accuses the other of exceeding the appropriate boundaries of judicial powers, and while one opinion heralds the principle of fair warning, the other laments that the scheming appellant will be "laughing all the way to the bank."[507] Even the facts of the case are narrated differently, with each version putting the appellant in a light that better suits the respective outcome.

We see no substantive theme binding the array of arguments mustered to support the decisions. Nor can we find any distinguishing quality that sets them apart from the propositions that support the competing outcome. The six branches of the decision have virtually nothing to do with one another: the legislative history of the particular statute, the nefariousness of financial structuring, the correct method of interpretation, the administrability of the statute, the rule "ignorance is no defense," and the rule of lenity—are essentially separate issues. One must be quite naive—and, indeed, oblivious to statistical probabilities—to believe that the uniform alignment of all

506. This assessment of *Ratzlaf* would not be much different if the opinions contained fewer inferences. Even if a majority of the arguments were added after the decision was made, we would still need an explanation for the coherence at the initial stage of the process.

507. *Compare* Ratzlaf v. United States, 510 U.S. 135, 136-49 (Ginsburg, J.), *with id.* at 150-62 (Blackmun, J., dissenting).

seventeen inference paths, or even the six major issues, occurred spontaneously.[508]

This picture is a far cry from Dworkin's idealized view of judging. The *Ratzlaf* opinions criticize too much. In the pursuit of coherence, the Justices discarded roughly one-half of the available propositions. More importantly, we see that the homogeneous parade of inferences lined-up in the judicial opinions does not stand for organic coherence that is extant in the legal practices and institutions. Rather than a scheme of principle, we find upon closer review a motley assortment of propositions—a surface-deep coalition of arguments, whose sole binding theme is that they lend argumentative support to the same decision. The fate of each individual inference is largely a product of chance; most propositions just happened to be associated with the sets as they did. It is just happenstance whether a certain fact is included in the particular set or excluded from it; whether a certain principle is bolstered to mean one thing or suppressed to mean the opposite; and whether a certain rule is applied rather than its exception.

In contrast, the psychological model offers a perspective from which it is possible to understand the judicial style of closure as a natural consequence of the coherence bias. This model has explained that closure is not a property *of* the legal sources but a feature *forced upon* these materials. From the psychological perspective, the apparently innocuous activity of interpreting legal texts entails transforming the materials.

The attainment of coherence in a judicial decision is an ad-hoc endeavor that is relevant only to the particular constellation of arguments. As Cardozo explains, the reasons on which decisions are constructed are short-lived: "We draw our little lines, and they are hardly down before we blur them."[509] As soon as the pressure towards coherence recedes, the legal materials lose their recently-acquired character, and return to their ambiguous existence within the world of multiple meanings.[510] The imposition of coherence is

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508. *Ratzlaf* is not perfectly representative of the majority of cases decided by the United States Supreme Court, in that it is a technical and intricate case and the certiorari was not limited to any particular aspect of it. Correspondingly, the *Ratzlaf* opinions contain a larger number, and a broader variety, of arguments than the typical Supreme Court cases. However, we are concerned here with the phenomenon of coherence more than with the multitude of the reasons. What is important here is that the *Ratzlaf* opinions follow the predominant style of American appellate judging. Indeed, none of the handful of scholarly analyses discussing *Ratzlaf* has noted any jurisprudential irregularities. *See supra* note 264 (providing a list of articles which analyze *Ratzlaf*).

509. CARDOZO, JUDICIAL PROCESS, *supra* note 5, at 161.

510. Cardozo admitted that the reasoning he offered as a judge did not remain with him for long; "[a] brief experience on the bench was enough to reveal to me all sorts of cracks

made possible by the fact that the propositions that constitute legal materials are malleable and that the pairing-rules are easily interchangeable.[511]

The stark coherence portrayed in the *Ratzlaf* opinions appears all the more precarious when examined in light of criminal law doctrine. The term "willfulness" does not comport to the typology of mental states commonly used in criminal law, and thus the term has no clear doctrinal meaning. Indeed, Justice Ginsburg admits that "willfulness" is a "word of many meanings."[512] Willfulness is said to be a "classic weasel word," that sometimes means wrongful intent, "but often it just means with knowledge of something or other."[513] It is questionable whether the term has become any less problematic since *Ratzlaf*.

Similarly questionable is the belief in the single-right answer theorem; that is, the view that holds that for every legal question there is a single rational and compelling solution residing in the law.[514] This belief is best understood in light of attribution theory, a field of research that examines the mental processes involved in identifying causes for human behavior.[515] One strand of attribution theory focuses on how people account for their own behaviors and thoughts, with particular emphasis on the distinction between external and internal causes. A well established finding is that people tend to generate external explanations for their behavior, especially when no plausible internal explanation is available.[516] This attribution bias

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and crevices and loopholes in my own opinions when picked up a few months after delivery and reread with due contrition." *Id.* at 29-30.

511. On the significance of ambiguity and malleability, see *supra* notes 386-88 and accompanying text.

512. *Ratzlaf*, 510 U.S. at 141 (quoting Spies v. United States, 317 U.S. 492, 497 (1943)).

513. American Nurses' Ass'n v. Illinois, 783 F.2d 716, 726 (7th Cir. 1986) (Posner, J.).

514. Explicit pronouncements of the view are rare in current legal theory. *Compare* DWORKIN, *supra* note 499, at 331-38, *with* DWORKIN, *supra* note 74. A rare expression of the view was make by Justice Clarence Thomas in a lecture he delivered at the University of Kansas on April 8, 1996. He stated "the truth is out there" and "there are right and wrong answers to legal questions."

515. For a review of attribution research, see SUSAN FISKE & SHELLY TAYLOR, SOCIAL COGNITION (2d. ed. 1991); Daniel T. Gilbert, *Ordinary Personology*, *in* 2 THE HANDBOOK OF SOCIAL PSYCHOLOGY, *supra* note 137, at 89.

516. For example, a person is likely to attribute a failure in an interview to the harshness of the interviewer and to attribute a mistaken belief to deceptive information she received, rather than to her own anxiety, overconfidence, biases and the like. On self-attribution, see, for example, Daryl Bem, *Self Perception Theory*, 6 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 1 (1972); Michael Ross & Garth J. O. Fletcher, *Attribution and Social*

is pertinent to the judicial process because, like the work of a good fairy, the mechanisms that facilitate the decision making process are mostly unbeknownst to the judges. Lacking any knowledge of the effects of the coherence bias on their decisions, judges seek external explanations for their sense of closure. The most natural candidate is the law itself. Judges identify the law as the source of the constraint, certainty and objectivity generated by their own cognitive systems.[517] The single-right answer theorem thus reflects a common mental misattribution more than it describes the law.

Another problematic consequence of the coherence bias is the confidence with which the decisions are made and opinions are written. Recall that in *Ratzlaf*, the unflinching support by some sixty arguments leaves little room for doubt in either of the respective decisions. It is noteworthy that both of the opinions insist that there is no ambiguity in its reading of the law.[518] I find this denial bewildering. One might expect that when four or more Supreme Court Justices arrive at opposite interpretations, the least that can be said is that the statute was ambiguous. Statements of this sort manifest how confident judges feel, even in the face of hard cases. More importantly, the acceptability of such statements in legal discourse brings us to examine how the coherence bias influences legal discourse.

The failure of ideal jurisprudence to account for the state of closure reported by judges is all the more grave in light of the price at which this closure is purchased. The most notable cost is the toll taken on the *integrity* of the discourse.[519] Indeed, one of the persistent charges leveled at the judicial practice has been that of disingenuousness,[520] in response to which defenders of the practice have pleaded to the lesser evil of self-deception.[521]

Perception, *in* 2 THE HANDBOOK OF SOCIAL PSYCHOLOGY, *supra* note 204, at 73; *see also* Joel Cooper & Russel Fazzio, *A New Look at Dissonance Theory*, 17 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 229 (1984).

Biases inherent to the self-attribution process are closely related to the difficulties people experience when trying to recall the sources of their memories. On this issue, see Marcia K. Johnson et al., *Source Monitoring*, 114 PSYCHOL. BULL. 3 (1993).

517. The single-right theorem is closely related to the syllogistic-like character of much of judicial reasoning.

518. *See Ratzlaf*, 510 U.S. at 148 (finding no ambiguity).

519. The term "integrity" is used here in the sense of veracity, soundness, and wholesomeness, rather than the specific use proposed in Dworkin's theory of adjudication. For a similar use of the term, see Anthony Kronman, *Foreword: Legal Scholarship and Moral Education*, 90 YALE L.J. 955, 963-64 (1981).

520. *See infra* notes 542-45 (discussing the critique of closure).

521. Cardozo spoke of the tendency of judges "to disguise the innovation even from themselves, and to announce in all sincerity that it was all as it had been before." CARDOZO,

Indeed, in other works of life, closure such as that displayed by judges might be considered a cause for disbelief.[522]

The judicial practice lives under the shadow of its self-mischaracterization. The model presented in this Article has suggested that decisions are not supported straightforwardly by the putative authority of all of the endorsed propositions. As a consequence, this indiscriminate endorsement obfuscates the important distinction among the arguments contained in the opinion. As readers, we are deprived of any possibility of distinguishing between good and bad arguments, between vital and trivial claims, and between propositions that deserve to bear gravitational force and those that will be blown in the wind of the next case. As a result, we have no alternative but to doubt *all* of the arguments provided by the judge including, of course, those that are most influential. This obfuscation is particularly acute in light of the finding that decision makers tend to take only a limited number of factors into serious consideration. The prominence effect is borne out clearly in the accounts of Chief Justice Rehnquist and Judge Coffin.[523] This leads us to the conclusion that of the sixty inferences made in each of the *Ratzlaf* opinions, only a few—which remain

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Jurisprudence, *supra* note 5, at 37. Similar statements were made by Judge Schaefer, *see* Schaefer, *supra* note 9, at 4-5. Richard Wasserstrom states:

> It would be incorrect to ascribe to the judiciary sinister motives of any kind. Judges do not deliberately seek to deceive the world about the nature of the decision process. The fact that their opinions obscure rather than illuminate the judicial process indicates that the departure from the deductive model is affected quite unconsciously.

WASSERSTROM, *supra* note 34, at 17; *see also* LLEWELLYN, DECIDING APPEALS, *supra* note 26, at 55; Jay M. Feinman, *Promissory Estoppel and Judicial Method*, 97 HARV. L. REV. 678, 697 (1984).

522. *See, e.g.*, PERELMAN & OLBRECHTS-TYTECA, THE NEW RHETORIC, *supra* note 317, at 473. For a rare suggestion that judge's expression of doubt could help their cause, see Gewirtz, *supra* note 55, at 1042-43 ("That very admission of limitation and even weakness—as a judge I cannot do what I personally wish I could do—adds to the judge's persuasiveness.").

523. In his book THE SUPREME COURT: HOW IT WAS, HOW IT IS (1989), Chief Justice Rehnquist explains that when the Justices vote in conference, they have only a broad idea of their decisions. *Id.* at 294. It is only at a later stage "the necessity of deciding the subsidiary question becomes apparent." *Id.* at 300-01.

As Judge Coffin prepares himself for the moment of choice, he reviews the materials and notes his thoughts. What he is "really interested in is resolving some big issues." COFFIN, *supra* note 168, at 185. He then summons his clerks for a wide-ranging discussion, which leads to the "point of decision." *Id.* Only then does he fully explore the authorities cited in the brief, sort out the cases, distinguish holdings from dicta, and analyze policy implications. *Id.* at 188.

unidentified—drove the decision, while the remaining ones were largely ignored.

The psychological model presented in this Article suggests also that, at some level, judges are skeptical of the reasons they cite; they too are not really devoted to the arguments they endorse. In the extreme, this precariousness is manifested in the familiar occurrence of *vote-switching*.[524] When a judge decides to change her vote, she is not only shifting her preference from one outcome to the other; she is also discarding a multitude of arguments and adopting a set of virtually opposite ones. While it is natural that a judge be persuaded by a colleague (or by second-thoughts) of a flaw in a particular line of argumentation or even in the conclusion itself, it is quite difficult to comprehend a reversal of her assessment of all the major issues, all the inference paths, and virtually all the arguments made. Yet vote switching does not seem to trouble judges or legal theorists much.

It is also likely that the relative ease with which the legal materials are restructured blunts the thoroughness that befits the judicial practice. As Holmes described: "I long have said that there is no such thing as a hard case. I am frightened weekly but always when you walk up to the lion and lay hold the hide comes off and the same old donkey of a question of law is underneath."[525] According to the psychological model, in Holmes' terms, the task of deciding between alternatives that have been cognitively spread apart is more like finding a donkey than like facing up to a lion. Based on their previous experiences of inferences ultimately falling into place, judges might be tempted to avoid grappling with complex and painstaking arguments and resort too readily to driving the dilemma towards closure.[526] This is most likely to happen when they are pressed for time.[527]

Another consequence of the coherence bias concerns the way adjudication guides social conduct. It might be maintained that closure promotes clarity and predictability, I contest this belief. Coherent opinions

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524. *See supra* note 311 and accompanying text.

525. Yosal Rogat, *The Judge As Spectator*, 31 U. CHI. L. REV. 213, 247 (1964) (quoting Holmes).

526. Clark and Trubek ask, "[i]f judges are not easily convinced that they possess the key to objectivity, or a sixth-sense for right and justice, will they not gain a false confidence in their own conclusions—conclusions that are in fact based on the humble stuff of subjective preference? . . . [W]ill that judge struggle quite so hard? That, we submit, is a paramount danger of too quick a grasp at certainty." Charles E. Clark & David M. Trubek, *The Creative Role of the Judge: Restraint and Freedom in the Common Law Tradition*, 71 YALE L.J. 255, 270 (1961). Judge Charles Clark is a United States Circuit Court Judge.

527. *See* Arie Kruglanski & Donna Webster, *Motivated Closing of the Mind: "Seizing" and "Freezing,"* 103 PSYCHOL. REV. 263, 264 (1996).

encompassing almost every plausible argument that support the decision inundate the field with doctrinal propositions, not all of which will be taken seriously in subsequent cases. The more numerous and contradictory the propositions in a decision, the more equivocal the message sent to citizens and government agencies attempting to conduct their affairs effectively. This excess of precedent causes courts to become "less predictable and more quirky."[528] Moreover, the spawning of arguments might also fuel the proliferation of litigation. Cluttered and inflated decisions stock up the arsenal of available arguments and thus offer a putative basis for virtually any thinkable argument. This creates a self-perpetuating cycle in that the more arguments presented to the judge, the more conflict and ambiguity exist in the case, and the greater the need to impose coherence on all arguments indiscriminately. As Judge Wald explains, "the more 'extras' an opinion contains, the more there is to take issue with and explain away in future opinions."[529]

It is also possible that the coherence bias limits the range of candidates for the judicial role. The selection of judges, including self-selection, might be tilted towards promoting people who are more capable of, and more inclined to, attain high degrees of closure in the face of complexity—*viz., mentally agile* jurists.[530] This could be a prohibiting factor. Judge Posner explains that the judicial role requires that one make decisions and move on. Moreover, he attests that high levels of self-consciousness are not conducive to this profession: people who are uncomfortable in the role—"and perhaps . . . [they] are the most introspective, sensitive, and scrupulous people—do not become judges, do not stay judges, or are unhappy judges."[531] Mental agility also has a distinct aesthetic dimension, with which some good people do not live comfortably.[532] It follows then that otherwise competent

528. Wald, *Some Thoughts on Judging*, *supra* note 63, at 904.

529. Wald, *Rhetoric of Results*, *supra* note 65, at 1408.

530. *See supra* note 392 (discussing Festinger's mental agility).

531. POSNER, JURIS. PROBLEMS, *supra* note 1, at 192.

532. This aesthetic aspect is exemplified in a letter John Keats wrote to his brothers in 1817. Keats wrote about a "disquisition" he had with his friend Charles Dilke, whom Keats regarded as a good and intelligent person. Nonetheless, he found Dilke to be far too doctrinaire in his intellect, striving for perfection. During the exchange, Keats came to realize a characteristic that makes "a man of Achievement;" it is when a person is "capable of being in uncertainties, mysteries, doubts, without any irritable reaching after fact or reason." This characteristic implies the strength to "remain content with half-knowledge;" it is, in Keats' eyes, an element of intellectual power. Keats thus questions the work of poets whose "sense of Beauty overcomes every other consideration, or rather obliterates all consideration." Dilke's insistence on full-knowledge is ultimately what denies him Keats' respect, for Dilke

candidates who have a low need for coherence, or an aversion to exerting their mental agility, are less likely to be found on the bench.[533] This is unfortunate because people who are capable of contending with openness and conflict are probably more apt to grasp the depths of the human experience and are more attentive to the conflict and complexity that pervade our social world.[534]

Judicial opinions deserve serious attention because of their formative impact on the legal culture. More than just providing solutions to particular controversies, the judicial opinion is a major progenitor of legal discourse.[535] Court opinions serve as a medium through which lawyers are trained, socialized and professionalized; thus they are disseminated and perpetuated throughout the legal culture. Judges are the sages—the principal role models whom we emulate when we speak and do law.[536] At law school, as we gain mastery over domains of knowledge and acquire analytical skills, we learn to speak the language of legal argument. We unwittingly internalize the premium placed on closure, and we learn to impose coherence over conflict and to replace doubt with confidence. Cognitive restructuring of legal materials becomes a major instrument in the legal toolbox, a second nature; it becomes "the way we do" legal argument.[537]

"will never come at a truth so long as he lives; because he is always trying at it." *See* LIONEL TRILLING, THE OPPOSING SELF 32-33, 35 (1955); *see also* KATZ, *supra* note 78, at 202-04.

533. On the need for coherence as an idiosyncratic trait, see *supra* note 390. One group of scholars has gone as far as suggesting that the judicial role might attract people who incline towards the authoritarian personality. *See* Charles Winick et al., *The Psychology of Judges*, *in* LEGAL AND CRIMINAL PSYCHOLOGY 121, 137 (Hans Toch ed., 1961). On the authoritarian personality, see THE AUTHORITARIAN PERSONALITY (Theodore W. Adorno et al. eds., 1950). On the relationship between intolerance of inconsistency and authoritarianism, see Miller & Rokeach, *Individual Differences and Tolerance for Inconsistency*, *in* THEORIES OF COGNITIVE CONSISTENCY, *supra* note 199, at 624.

534. Another profession that seems to suffer from similar limitations is that of military commanders. As Tolstoy commented, a good general "is the better for the absence of the loftiest and finest human attributes—love, poetry, tenderness and philosophic and inquiring doubt. He should be limited, firmly convinced that what he is doing is of great importance . . . and only then will he be a gallant general." LEO TOLSTOY, WAR AND PEACE 763 (Penguin Books 1978) (1869).

535. *See* JAMES BOYD WHITE, *supra* note 161, at 110; JAMES BOYD WHITE, JUSTICE AS TRANSLATION: AN ESSAY IN CULTURAL AND LEGAL CRITICISM 101-02 (1990).

536. Schauer states, "[a]s long as the appellate opinion remains the primary teaching vehicle in American law schools[,] . . .those opinions will play a large part in determining the skills, aspirations, and self-understanding of American lawyers." Schauer, *supra* note 3, at 1472. On teachers as role models, see BETTY A. SICHEL, MORAL EDUCATION: CHARACTER, COMMUNITY AND IDEALS 225-45 (1988).

537. *See* Kennedy, *Freedom and Constraint*, *supra* note 113, at 534.

Legal education, then, entails training in mental agility, it teaches us to work within the plasticity of the law.[538] If we do not stand guard, we stand the risk of losing touch with the human experience in whose service law works.

C. The Psychological Model and Critical Jurisprudence

It is apparent from the foregoing discussion that some of the central conclusions of the psychological model resonate with some of the central claims of critical jurisprudence. The two approaches share the observation that the judicial style of closure submerges the very important fact that judges do, in fact, make choices. The misapprehension of the mechanisms that affect their decisions allows them to adopt a bureaucratic posture and to yield to the putative constraint imposed by the legal materials. Thus, closure enables judges to detach themselves from the consequences of their decisions.[539]

The psychological model also comports with a strand of critical jurisprudence that emphasizes the communitarian perspective. In this view, the adjudicatory process is expected to provide a forum for public debate; a medium through which people can express their views of the world, advocate their perspectives, and voice their grievances. An ancillary expectation is that judges listen responsively to these voices and try to integrate opposing perspectives. Judges, in short, are expected to help people understand each other and get along with one another.[540] These expectations are severely hampered by the judicial tendency to embrace one side indiscriminately while rejecting the other outright. Rather than emphasizing commonalties and broadening social consensus, the judicial one-sidedness

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538. *See* Posner, *Skepticism*, *supra* note 15, at 847; *see also* POSNER, JURIS. PROBLEMS, *supra* note 1, at 100.

539. *See* Martha Minow, *The Supreme Court, 1986 Term, Foreword: Justice Engendered*, 101 HARV. L. REV. 10, 11 (1987) [hereinafter Minow, *Justice Engendered*]; *see also* Minow, *Identities*, 3 YALE J.L. & HUMAN. 97, 129 (1991) [hereinafter Minow, *Identities*]. Minow and Spelman stated "the real danger of arbitrary judicial action is greatest when the announced reasons for judicial action bear little relationship to their actual sources in the judge's thinking process." Martha Minow & Elizabeth Spelman, *Passion for Justice*, 10 CARDOZO L. REV. 37, 54-56 (1988) [hereinafter Minow & Spelman, *Passion for Justice*]. For a different position, see Altman, *supra* note 53. On the violence administered through adjudication, see Robert Cover, *Violence and the Word*, 95 YALE L.J. 1601 (1986); *see also* POSNER, OVERCOMING LAW, *supra* note 183, at 133-34.

540. *See* Minow, *Justice Engendered*, *supra* note 539; *see also* WHITE, *Rhetoric and Law*, *supra* note 161, at 47, 135; Martha Minow, *Interpreting Rights: An Essay for Robert Cover*, 96 YALE L.J. 1860 (1987) [hereinafter Minow, *Interpreting Rights*].

pushes the opposing parties further apart. The judicial opinion, then, entrenches the boundaries that separate people; it solidifies parochialism and perpetuates pre-existing power arrangements.[541]

Both the psychological approach and the critical approach share considerable common ground in their skepticism of judicial reasoning. The hollowness of closure lies at the heart of the critique of the judicial practice. Thus, the psychological model endorses charges made by various critical judges and scholars regarding the falsity of the constraint,[542] the disbelief in judicial confidence,[543] the unreliability of opinions,[544] and the adherence to rituals.[545] The model, however, parts ways with critical scholars who take this skepticism as proof that judicial decisions are necessarily determined by ulterior, extra-legal motivations.[546]

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541. Eskridge and Frickey state:

> Too often the Court's statutory interpretations ignore opposing arguments or treat them in a dismissive, mechanical fashion, typically in footnotes, and too rarely do they engage in an open dialogue that notes the virtues of various positions and explains why one of them is preferable. Such a dialogue would improve the quality of the Court's opinions and provide more solid guidance for lower courts, which must interpret the Court's opinions, and for Congress, which might want to amend the statute in response to the Court's concerns. It also might alter the results in some of the Court's most unconvincing opinions.

Eskridge & Frickey, *supra* note 54, at 371.

542. Posner learns from the heeding of authoritative legal standards that judges are "not free from that form of hypocrisy (if that is the right word) which consists of adopting a public face not altogether consistent with one's innermost feelings." POSNER, JURIS. PROBLEMS, *supra* note 1, at 189-90. Schauer observes "[i]t is quite possible, however, that the language of discovery, of finding, is frequently false or misleading, masking a reality of law creation." Schauer, *supra* note 51, at 642 n.23.

543. Wald speaks about a cynical attitude towards the practice: "while judges still typically write as if they were absolutely certain about the rightness and soundness of their analysis and decisions, everyone (including the judges) knows that's not necessarily the case." Wald, *Rhetoric of Results*, *supra* note 65, at 1417.

544. Schaefer explained that one of the reasons for the "unreliability in judicial decisions" is that the opinion "fails by a wide margin to reflect accurately the state of mind of the court which delivered it." Schaefer, *supra* note 9, at 7. As Llewellyn explained, order can be imposed on disorganized systems, but it can be done only "at the expense of descriptive perfection, or full truth." LLEWELLYN, CASE LAW, *supra* note 9, at 63. Similarly, Martha Nussbaum explains that "[c]onsistency in conflict is bought at the price of self-deception." *See* MARTHA NUSSBAUM, THE FRAGILITY OF GOODNESS 39 (1986).

545. Judge Leflar spoke of the judicial function's lingering character of a "magic priesthood." Leflar, *supra* note 8, at 819.

546. For example, the central claim in Duncan Kennedy's CRITIQUE OF ADJUDICATION, *supra* note 55, is that judicial decision making is a disguised form of ideology. *Id.* at 2, 92. Harold Lasswell described opinions as rationalizations designed to cover-up ulterior reasons

It is quite natural to interpret hollow reasoning as a cover for ulterior motives. As Duncan Kennedy explains, "many particular claims of legal necessity in judicial opinions are unconvincing on their face, and therefore raise the question of what is 'really' determining the outcome."[547] This response comports with the philosophical tradition that juxtaposes the philosopher with the rhetorician.[548] Rhetoric, Plato charged, is a method of denying or ignoring truth; it is Sophists' tool in the profession of oratory, of arguing without conviction.[549]

This psychological model leads to the conclusion that, in the category of *low-stakes* cases, we ought to overcome the surface similarity and reject the view that judicial opinions necessarily conceal result-driven judging. The exaggerated preference judges express in their opinions does stand for a motive that dominates the decision;[550] the preference stems from a belief that develops during the making of the decision, and as a consequence of the mental processes involved in decision making. Judges do not generate strong and coherent opinions for the sake of justifying a particular result, but as means of facilitating the decision choice.

According to this psychological model, the decision's outcomes do not drive the choice; they merely *mediate* the cognitive changes generated throughout the cognitive structure.[551] It should also be remembered that the neutral broker judge develops two competing models, each of which is

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for decisions. *See* HAROLD LASSWELL, POWER AND PERSONALITY 38, 65-88 (1948). Lawrence Solan views opinions as a "concealment of unattractive truths." LAWRENCE SOLAN, THE LANGUAGE OF JUDGES 176 (1993). Stanley Fish calls opinion writing "a practice of self-presentation" and "a complex of rhetorical gestures." Stanley Fish, *Dennis Martinez and the Uses of Theory*, 96 YALE L.J. 1773, 1790 (1987). Segal and Spaeth protest that legal opinions merely rationalize choices that are based on the personal preferences of judges. *See* SEGAL & SPAETH, *supra* note 128, at 33-53, 363.

547. KENNEDY, CRITIQUE OF ADJUDICATION, *supra* note 55, at 29.

548. *See, e.g.*, STANLEY FISH, DOING WHAT COMES NATURALLY: CHANGE, RHETORIC, AND THE PRACTICE OF THEORY IN LITERARY AND LEGAL STUDIES 478-85 (1989).

549. *See* THOMAS M. CONLEY, RHETORIC IN THE EUROPEAN TRADITION ch. 1 (1990); BILLIG, *supra* note 197, ch. 3.

550. Judge Friendly describes *result-orientation* as situations in which a judge has a "personal belief in what is desirable, formed before the study of the case at hand and resistant to contrary argument." Friendly, *supra* note 368, at 231.

551. To appreciate this point we return to the network-like representation of the case and to the special role played by the units representing the case's alternative outcomes. These units serve as the central juncture through which all the propositions are interconnected. Recall that the process of constructing the mental models generates increasing global coherence, and it is this structural force that imposes change on the legal materials. Global pressures advance through the central units and spread out to the entire network.

modified to attain its highest level of coherence. Of the two models, the judge chooses one model as the winning decision, and only this winning model is depicted in the judicial opinion. But the suppressed, hidden model is usually not much less coherent. If the judge had ultimately decided the other way, the opinion depicting that other model would have conveyed a similarly high level of closure, and it, too, would seem to the critics to be a product of result-driven judging.

One contribution of the psychological model is that it presents the judicial practice as more differentiated than is generally portrayed by its critics. The model has suggested that the dichotomy between *homo serious* and *homo rhetoricus*[552] fails to capture the complexity of the judicial decision. As stated above, exaggerated justification is the natural product of the mental processes of neutral broker judging. It is crucial to appreciate that this style of reasoning is not a mask for political judging. If judges decide cases according to naked preferences—as they sometimes do—they should be criticized for encroaching on their mandate. If, however, what appears to be doing politics is, in fact, a natural feature of mental processing, then our evaluation should be of a different kind. Chastising judges for what they genuinely experience as honest decision making does not serve the public debate any better than the harm done by heralding decisions infused with hollow closure.

D. A Temperate Recommendation

A form of jurisprudence that seems to offer a good alternative to the judicial style of closure is that of a less imperious and more straightforward approach to judging. Richard Posner has advocated a pragmatic jurisprudence of this kind: "the highest realistic aspiration of a judge faced with a difficult case is to make a 'reasonable' (practical, sensible) decision, as distinct from a demonstrably correct one."[553]

In a legal culture of pragmatic judging, the current "demonstrably correct" style would be unnecessary and misplaced. Judges would not be expected to construct elaborate and overbearing opinions that endorse virtually every argument that has positive implications for the chosen decision. Instead, they would be expected to identify what they perceive to be the few principal arguments, and to limit their opinions to these arguments. In *Ratzlaf*, for example, rather than insisting on homogenous sets of some sixty arguments, a pragmatic judge would base his decision on the

552. *See* FISH, *supra* note 548, at 482-83.

553. POSNER, JURIS. PROBLEMS, *supra* note 1, at 456; *see also id.* at 26.

few arguments which he finds to be valid and influential, while admitting that some good arguments support the opposite outcome. To be sure, the suggestion that judges forego their adherence to coherent opinions does not mean that the judge need expose every doubt and insecurity in the opinion. A pragmatic approach charts a middle ground between "letting it all hang out"[554] and making-everything-stick. A judicial practice that followed these lines would circumvent many of the problems induced by the coherence bias and the judicial style it engenders.

It must be acknowledged that any attempt to reform the current judicial style runs into difficult obstacles, in that the cognitive phenomenon of restructuring the legal materials occurs mostly automatically. In other words, the problem is that judges would be required to alter habits of thought of which they are generally unaware, and over which they have very little control.[555] It is important to note, however, that current research suggests that the distinction between automatic and controlled mental processes is not absolutely impermeable.[556] Given the right conditions, people can break into automatic processes and, at least to some degree, *overcome* them.[557] Though as demonstrated by the social history of

554. *See* Wald, *Rhetoric of Results*, *supra* note 65, at 1411.

555. On the distinction between automatic and controlled processes, see *supra* note 360 and accompanying text.

556. Dan Gilbert describes how controlled processing monitors automatic performance of attribution tasks. *See* Dan Gilbert, *Thinking Lightly About Others: Automatic Components of the Social Interference Process*, *in* UNINTENDED THOUGHT 189, 206-07 (James S. Uleman & John A. Bargh eds., 1989). For most people, stereotyping occurs automatically. Patricia Devine has shown that the difference between prejudicial and non-prejudicial people is that the stereotypical thoughts of prejudicial people remain in tact, whereas non-prejudicial people subsequently inhibit these thoughts by means of controlled processing. *See* Patricia G. Devine, *Stereotypes and Prejudice: Their Automatic and Controlled Components*, 56 J. PERSONALITY & SOC. PSYCHOL. 680 (1989). For an excellent application of these findings to law, see Jody Armour, *Stereotypes and Prejudice: Helping Legal Decisionmakers Break the Prejudice Habit*, 83 CAL. L. REV. 733 (1995). For similar models of attitude change following persuasion, see Richard E. Petty & Duane T. Wegner, *Attitude Change: Multiple Roles for Persuasion Variables*, *in* 1 THE HANDBOOK OF SOCIAL PSYCHOLOGY, *supra* note 139, at 323, 330. In contrast to these dual-process models, it has been suggested that the interaction between automatic and controlled processing can be based on connectionist-based models. *See, e.g.*, Eliot R. Smith, *Preconscious Automaticity in a Modular Connectionist System*, 10 ADVANCES SOC. COGNITION 187 (1997).

557. On overcoming automatic processes, see Wegner & Bargh, *supra* note 360, at 463-64, 484; *see also* DAVID F. BARONE ET AL., SOCIAL COGNITIVE PSYCHOLOGY: HISTORY AND CURRENT DOMAINS 165, 190 (1997); Roy F. Baumeister & Kristin L. Sommer, *Consciousness, Free Choice, and Automaticity*, 10 ADVANCES SOC. COGNITION, 75, 77-79 (1997).

stereotyping, prejudice and attribution errors, overcoming automatic processes is no easy feat.[558] To begin to overcome these biases it is necessary that the person has both the cognitive capability and the motivation to do so.[559]

One approach suggested to increase the cognitive capability to control automatic processing is that of introspection. Jerome Frank, for example, maintained that by reflecting more closely into themselves, judges could gain insight into their normally hidden mental processes and thus better manage their biases.[560] Frank's suggestion resembles experimental attempts to reduce erroneous judgments by means of describing the nature of the bias to people in advance and requesting them to circumvent it. Such methods have been tried in experimental settings and have turned out to be unsuccessful overall.[561] The related approach of simply imploring people to "concentrate harder" has fared no better.[562]

A more constructive line of thought is to interfere in the normal process of making the decision and impede the indiscriminate adoption of one entire mental model. This approach encourages the judge to acknowledge the subjectivity of the phenomenological state and to question the mental representation of the case. Two such methods have proved somewhat successful in experimentation of similar biases.[563] The first contrasts the

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558. On the difficulties of overcoming unwanted processing that occurs automatically, see Timothy D. Wilson & Nancy Brekke, *Mental Contamination and Mental Correction: Unwanted Influences on Judgments and Evaluations*, 116 PSYCHOL. BULL. 117 (1994). Wilson and Brekke define "mental contamination" as situations in which people engage in biased processing and hold incorrect theories about their biases. *Id.*

559. *See* Susan Fiske, *Stereotyping, Prejudice and Discrimination*, *in* 2 THE HANDBOOK OF SOCIAL PSYCHOLOGY, *supra* note 139, at 357, 385-91; Petty & Wegner, *supra* note 556, at 331; *see also* BARONE ET AL., *supra* note 558, at 211; Wendi L. Gardner & John T. Cacioppo, *Automaticity and Social Behavior: A Model, a Marriage, and a Merger*, 10 ADVANCES SOC. COGNITION 133, 136 (1997); Wilson & Brekke, *supra* note 558, at 125, 134. This line of theory dates back to Gordon Allport. *See generally* GORDON W. ALLPORT, THE NATURE OF PREJUDICE (1954).

560. Recall that in this vein, Frank recommended that judges be trained in psychology or undergo psychotherapy themselves. *See supra* note 111 and accompanying text.

561. Notable failures of this technique are demonstrated in Lord et al., *supra* note 314, and in Baruch Fischhoff, *Perceived Informativeness of Facts*, 3 J. EXPERIMENTAL PSYCHOL.: HUM. PERCEPTION & PERFORMANCE 349 (1977).

562. *See* Baruch Fischhoff, *Debiasing*, *in* JUDGMENT UNDER UNCERTAINTY, *supra* note 100, at 422, 429.

563. For reviews, see Hal R. Arkes, *Principles in Judgment/Decision Making Research Pertinent to Legal Proceedings*, 7 BEHAV. SCI. & L. 429, 450 (1989); Scott

ultimate state of closure with the initial state of complexity, conflict and contradiction.[564] An alternative method is to get the judge more engaged with the rejected subset of arguments, so as to notice the thrust of some of the arguments supporting the road not taken.[565]

More crucial to the prospects of reform is the requirement of motivation. For any change to take place, it is imperative that judges be motivated to overcome their automatic processes. Judges would be expected to alter forms of reasoning that are cognitively useful, habitual, and thus persistent. Recall that the coherence driven processes are socially functional, and that they could be confused with the notion of coherence as a constitutive jurisprudential ideal. It is also noteworthy that the current members of the judiciary are likely to favor the status quo. Having elected to join the profession and having persevered on the bench, they are probably predisposed towards mental states of closure rather than towards openness, ambiguity or complexity. In sum, it is unlikely that judges will spontaneously offer to bear the personal and institutional costs entailed in the substitution of closure with a more reasonable, pragmatic form of reasoning.

Hawkins & Reid Hastie, *Hindsight: Biased Judgments of Past Events After Outcomes are Known*, 107 PSYCHOL. BULL. 311 (1990); Fischhoff, *supra* note 562.

564. As shown above, there are serious difficulties with instructing judges to trace the decision process backwards and to recall their initial inferences. People simply cannot produce valid accounts of beliefs they held prior to the transformation of those beliefs. A better way is to get the judge to acknowledge the strong arguments supporting both outcomes before he constructs the mental models. Such acknowledgment can be done, for example, by noting the thrust of the arguments at the beginning of the deliberation (even in a private memo). The judge should revisit these evaluations prior to making his final choice and test the decision in their light. For experimental results, see Martin Davis, *Reduction of Hindsight Bias by Restoration of Foresight Perspective: Effectiveness of Foresight-Encoding and Hindsight-Retrieval Strategies*, 40 ORG. BEHAV. & HUM. DECISION PROCESSES 50 (1987).

565. Once the judge has chosen the winning decision, she should conduct a heuristic exercise of presenting the unchosen alternative as the favored one. Methods similar to this one have been tried in experimentation and have yielded some positive results. *See* Lord et al., *supra* note 314; Paul Slovic & Baruch Fischhoff, *On the Psychology of Experimental Surprises*, 3 J. EXPERIMENTAL PSYCHOL.: HUM. PERCEPTION & PERFORMANCE 544, 548-49 (1977). The task of "considering the opposite" is consistent with findings that the mere articulation of explanations in support of a hypothetical issue enhances the person's belief in the correctness of the hypothesis. *See* Derek J. Koehler, *Explanation, Imagination, and Confidence in Judgment*, 110 PSYCHOL. BULL. 499 (1991). It should be noted that judges need ample time and cognitive availability to engage in these taxing processes. Busy and overextended people are more likely to devote their mental energy to clearing their desks than to performing such demanding mental exercises.

Alternatively, motivation to overcome automatic processing can be driven by extrinsic sources. Extrinsic motivation is typically impelled by cultural norms backed by social sanctions.[566] In the context of judging, the legal community would have to demand pragmatic opinions from its judges, and to sanction them for resorting to closure. As a psychological matter, this course of action is not an impossibility,[567] though it is hindered by the fact that closure is not conceived in current American legal culture as an undesirable form of reasoning. For any cultural shift to occur, it must be demonstrated to the participants in legal discourse that the judges' experience of constraint is largely faulty, their confidence is illusory, and the apparent coherence is not a property of the law but of their constructed representations of it. In short, the legal community must come to acknowledge that closure is primarily a psychological artifact, and to appreciate the heavy toll it takes on the integrity of the discourse. In addition, judges and their audiences must become comfortable with the wielding of power by this non-majoritarian institution through decisions devoid of putative certainty. Reform, then, demands a concerted effort from both judges and the participants in the legal discourse.

V. EPILOGUE

This psychological framework has at once advanced a critical dimension of the judicial practice and questioned a tenet of extant critical approaches. Hopefully, these suggestions will contribute to a more focused, candid and fair debate surrounding this crucial social institution and, in concert with other disenchanted voices, generate movement towards reform. It must be acknowledged, however, that a reform in judicial reasoning does not seem imminent—and when it comes to pass, it will probably be less than complete. In some form or another, the coherence bias and the ensuing style of closure are here to stay; the ways in which judges decide and reason may be the most that can be expected given the tremendous difficulty of the

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566. Indeed, the social sanction is one of the few available means to motivate people to become more attuned to their automatically processed behaviors and to take better control of them. For example, it is the changing cultural response to sexual harassment and prejudice that has affected change, however moderate, in these largely automatic behaviors. *See* Baumeister & Sommer, *supra* note 557, at 75, 78-79; *see also* BARGH, *Conditional Automaticity*, *supra* note 350; BARONE ET AL., *supra* note 557, at 211.

567. Recall that people are not entirely unaware of their pre-restructuring inferences. To some degree they are able to recall the initial attitudes, and there is reason to believe that with an appropriate social sanction, they could increase their awareness and control.

judicial task and the limits of human cognitive abilities.[568] Nonetheless, in order to conduct a serious discussion of the judicial practice, we must understand the mental processes that drive it, and appreciate their strengths, their flaws, and their limitations. Given the knowledge made available by scientific psychology, it is incumbent on the participants in legal discourse to try to obtain a deeper comprehension of what judging is like "on the inside."[569] As Learned Hand admonished critics of the judiciary:

> And so, while it is proper that people should find fault when their judges fail, it is only reasonable that they should recognize the difficulties. Perhaps it is also fair to ask that before the judges are blamed they shall be given the credit of having tried to do their best. Let them be severely brought to book, when they go wrong, but by those who will take the trouble to understand.[570]

This Article is an attempt to take the trouble.

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568. On the mismatch between the complexity of modern day tasks and the limited human capabilities, see Herbert Simon, *Alternative Visions of Rationality*, *in* JUDGMENT AND DECISION MAKING: AN INTERDISCIPLINARY READER 97, 106 (Hal R. Arkes & Kenneth R. Hammond eds., 1986). For an evolutionary-based explanation of this mismatch, see Leda Cosmides & John Tooby, *Better Than Rational: Evolutionary Psychology and the Invisible Hand*, 84 AM. ECON. REV. 327 (1994).

569. Paraphrasing Martha Minow, *supra* note 26, at 801.

570. LEARNED HAND, *The Spirit of Liberty*, *supra* note 148, at 110.