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Multiple Constraint Satisfaction in Judging

Jennifer K. Robbennolt

Robert MacCoun

John M. Darley

Abstract

Different models of judicial decision making highlight particular goals. Traditional legal theory posits that in making decisions judges strive to reach the correct legal decision as dictated by precedent. Attitudinal and strategic models focuses on the ways in which judges further their preferred policies. The managerial model emphasizes the increasing caseload pressures that judges at all levels face. Each model accurately captures some of what every judge does some of the time, but a sophisticated understanding of judicial decision making should explicitly incorporate the notion that judges simultaneously attempt to further numerous, disparate, and often conflicting, objectives. We offer a preliminary account of a more psychologically plausible account of judicial cognition and motivation, based on principles of goal management in a constraint satisfaction network.

MULTIPLE CONSTRAINT SATISFACTION IN JUDGING

Jennifer K. Robbennolt, Robert J. MacCoun, and John M. Darley*

> Under our law judges do in fact have considerable discretion in certain of their decisions: making findings of fact, interpreting language in the Constitution, statutes, and regulations; determining whether officials or the executive branch have abused their discretion; and, fashioning remedies for violations of the law, including fairly sweeping powers to grant injunctive relief. The larger reality, however, is that judges exercise their powers subject to very significant constraints.
>
> Hon. Alex Kozinski, U.S. Court of Appeals for the Ninth Circuit

Judges make decisions for a living, and their decisions are unusually consequential, with direct effects on immediate cases, and a ripple of less direct effects on future cases. Trial court judges must variously act as finders of fact in bench trials, jury trial supervisors, and overall case managers. Appellate court judges may, for example, make decisions about the merits of particular cases, determine whether to join an opinion and whether to write separately (see e.g., Taha, 2004), or participate in decisions about whether to grant cert or en banc review (George, 1999). Chief judges face an additional set of administrative responsibilities, such as managing the docket and the budget, assigning opinion writing, coordinating visiting judges and judges on senior status, hiring and firing staff, and handling issues related to building maintenance and equipment (George & Yoon, 2007). The Chief Justice of the U.S. Supreme Court has additional responsibilities, such as appointing judges to the committees of the judicial conference (Chutkow, 2007). Judges may even need to decide when it is the best time to retire (see e.g., George & Yoon, 2007).

Each of the varied decisions that judges are called upon to make inevitably evokes a range of possible goals. Different models of judicial decision making tend to highlight particular goals. For example, traditional legal theory posits that in making decisions judges strive to reach the correct legal decision as dictated by precedent. There are various legal realist and critical realist alternatives to this baseline account; of particular relevance here are the attitudinal, strategic, and managerial models. The *attitudinal model* focuses on the ways in which judges make decisions that further their preferred policy objectives (Segal & Spaeth, 1993; Segal & Spaeth, 2002). *Strategic models* incorporate consideration of the ways in which judges seek to effectuate their goals in the long term (Epstein & Knight, 1998; Maltzman, Spriggs, & Wahlbeck, 2000). The *managerial model* emphasizes the increasing caseload pressures that judges at all levels face (Resnik, 1982-83). Thus, as they make decisions, judges must balance their desire to reach the "right" legal result, their preferences for particular outcomes, their need to manage their workload, and many other objectives.

To view these models as competitive accounts – one more valid than the others – is probably misguided. We argue that each model accurately captures some of what every judge

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does some of the time, and that no single model is likely to describe any judge all of the time. A sophisticated understanding of judicial decision making should explicitly incorporate the notion that judges simultaneously attempt to further numerous, disparate, and often conflicting, objectives. In this chapter we will attempt a preliminary account of a more psychologically plausible account of judicial cognition and motivation.

Goals in Judicial Decision Making

Traditional legal theory posits that judges ought to attempt to reach a correct legal decision through the proper application of legal rules and precedent (see review in Cross, 1997). As argued by judge Harry Edwards (1995), "it is the law - and not the personal politics of individual judges - that controls judicial decision-making." Consistent with this approach, there is evidence that the law does influence judicial decision making (see e.g., Klein, 2002; Richards & Kritzer, 2002). However, a range of evidence exists to demonstrate a range of additional objectives—beyond a correct legal holding—that judges seek to accomplish.

For example, the attitudinal model of judicial decision making holds that judges make decisions that will maximize their policy preferences, voting in ways that are consistent with their political ideology (see Segal & Spaeth, 1993, 2002; see also George, 1998).

An influential new approach to the attitudinal model of judging appears in the methodologically ambitious work of Andrew Martin, Kevin Quinn, and their colleagues (see e.g., Martin & Quinn, 2002). These authors argue that Supreme Court votes across 47 consecutive terms are well represented by a single ideological dimension, and that at any given time, a Justice can be located on a position – an ideal point – on that dimension.[1] This characterization, if correct, would not necessarily invalidate our constraint satisfaction account, but it would render our goal management principles superfluous, at least for Justices of the Supreme Court. However, we think it is plausible that the Quinn-Martin analysis could overlook other meaningful dimensions in Justices' votes.

Martin and Quinn (2002) attempt to identify the dimensionality of Supreme Court votes (to affirm or reverse) using a database of 3450 cases from the 29 justices sitting on the Court during the 1953 through 1999 terms. They develop an innovative Bayesian Monte Carlo algorithm to infer ideal points for each justice. The details of the algorithm and its derivation are beyond the scope of this chapter, but our concern is less with the method than with the available data. In psychometric practice, the usual rule of thumb for fitting a latent dimensional model is that one needs a minimum of 5-10 respondents per measured item. The Martin-Quinn analysis reverses this inequality; with between 41 (in 2003) and 108 (in 1972) decisions per term and only nine seated Justices per term, there are far more items (41 to 108) than respondents (9 for any given item).

It is difficult to correctly characterize an underlying multidimensional structure when the data are sparse (Fabrigar et al., 1999). Consider IQ tests. These are by far the most thoroughly explored

[1] The notion of ideal points has its origins in so-called "spatial models of voting" in the political science literature on legislatures (see Downs, 1957; Enelow & Hinch, 1990; McCarty, Poole, & Rosenthal, 2006).

and validated latent variable models of the past two centuries. They are carefully and painstakingly constructed from a very large set of items *selected to be homogeneous* ("high g loading"), with thousands of respondents. Even so, with "factor rotation" algorithms, or with a confirmatory factor analysis using structural equation models, one can usually fit a multidimensional model to these seemingly unidimensional datasets, and many psychologists believe there are sound theoretical reasons to do so (see e.g., Cattell, 1963; Sternberg, 1999). Moreover, Supreme Court votes alone are unlikely to capture the full dimensional complexity of professional judging, because they are far from a random sample of judicial decisions, being instead a finely filtered sample that has undergone an intensive selection process. We hope future research will attempt to cross-validate the Martin and Quinn analysis. For example, their unidimensional ideological scores could be validated against content analyses of how justices and decisions have been characterized in op-ed essays in U.S. newspapers,[2] and against ideal-point congressional data – e.g., data on which representatives endorsed or opposed which justices. Without further validation, it is unclear whether Martin and Quinn are accurately characterizing the dimensional structure of the attitudes of Supreme Court justices. Still, we recognize that a unidimensional model might be a reasonable (and usefully simple) first approximation.

Related models have incorporated elements of strategic behavior in judicial decision making (Epstein & Knight, 1998; Maltzman, Spriggs, & Wahlbeck, 2000). These strategic models propose that judges do not simply vote in ways that are plainly consistent with their attitudes, but make decisions that take into account the ways that the predicted actions of other players (such as their colleagues or Congress) influence the feasibility of attaining their desired ends. Thus, judges may agree to decisions that do not completely effect their policy preferences to avoid results that depart even further from their preferences or may draft opinions in ways that do not perfectly represent their preferences in the instant case, but that will garner the necessary votes. Such models have primarily examined judges' use of strategy in effectuating their ideological goals, but strategic behavior could be employed in the service of other judicial objectives as well (Baum, 2006).

In contrast to an account of judicial decision making based on ideology, an account of judges as case managers highlights the effects of caseload pressures on judicial decision making (see Resnik, 1982-83). Managerial judges are thought to be concerned with saving time, reducing delays, and improving efficiency.[3] Thus, in this view, a primary goal that judges face is the need to move the docket. For trial court judges, this desire may manifest itself in a desire to settle cases (Resnik, 2002), more judicial involvement at earlier stages of the case (Galanter, 2004), and decreased opinion writing (Taha, 2004). But a need to move the docket may be experienced at all levels of the judiciary. For example, judges may choose to dispose of cases on procedural grounds to limit the need to decide cases on the merits or to avoid the need to decide

[2] A new effort seems to proceed in the reverse direction, using Martin-Quinn scores to validate the ideologies of media outlets (see Ho & Quinn, 2007).

[3] This concern is not unique to judges; citizens also seem to expect the courts to trade off efficiency and procedural thoroughness. MacCoun and Tyler (1988) found that citizens strongly preferred juries to judges (and 12-person unanimous juries to smaller or non-unanimous juries) for homicide cases, but preferred bench trials or small, majority-rule juries for shoplifting cases.

cases in areas where they have less expertise (see Macey, 1994; Resnik, 2002 (describing "the profoundly challenging problems of rendering judgment")). Judges as case managers may strive to limit their workloads, minimize the amount of time they spend on aspects of their job they find less interesting in favor of decision tasks (or cases) they prefer, or attempt to achieve control (or a sense of control) over the nature and pace of their work.

One side effect of a focus on concerns for efficiency, coupled with the ability that courts now have to collect more data on court operations, is that there is increasing opportunity for judges to attend to their "statistics" – e.g., the number of cases they terminate, or the number of motions they have ruled on, or the number of days they have spent in trial (Resnik, 1982-83; see also Darley, 2001). Thus, judges may have goals that relate to improving their performance on these types of measures.

Intertwined with the goals that are most central to legal, attitudinal, strategic, and managerial models of judicial decision making, judges may also be influenced by a range of additional objectives. For example, judges may seek to make decisions that will not be overturned by a higher court or on en banc review; they may seek to maximize their opportunities to exercise discretion; they may seek to cultivate their reputation with their peers or another constituency (e.g., the bar, academics, Congress, the press, particular interest groups, or the public), aspiring to be respected, influential, and frequently cited; they may seek to be re-elected, to be promoted to a higher court, or to move to another position beyond the court; they may seek to build collegial relationships with their colleagues on the bench; they may seek to make decisions that are consistent with their self-identity; and they may seek to achieve a measure of consistency with their own past decisions (see generally Baum, 1997; Baum, 2006; Cohen, 1991; Posner, 1993; Wrightsman, 2006). While many of these disparate goals may be entertained consciously, others may be adopted or pursued without conscious awareness (see e.g., Bargh & Chartrand, 1999; Shah, 2005; see also Guthrie, Rachlinski, & Wistrich, forthcoming). Furthermore, variations in the decision context – for example, whether and how the judge will be accountable for the decision – can serve to make particular goals temporarily operable or salient (see e.g., Lerner & Tetlock, 1999).

While judges as a group may share this range of objectives to one degree or another, judges sitting on different courts or across jurisdictions face different sets of tasks and demands. Similarly, different decision tasks may evoke different judicial goals. For example, trial and appellate court judges are called upon to make different kinds of decisions and face differing constraints on their decision making. U.S. Supreme Court justices enjoy a greater degree of control over their agenda and more discretion than do judges on other courts and may seek to effect a somewhat different set of objectives. For trial court judges, ruling on a pre-trial motion may be subject to different constraints than reaching a verdict in a bench trial. Judges who sit in jurisdictions in which judges are elected may face different pressures than do judges who are appointed. This divergence in decision tasks and in the range of demands faced by judges sitting on different types of courts or across jurisdictions, may lead to different (though overlapping) sets of salient goals.

Trial Court Judges

Trial court judges wear many different hats, variously serving as finders of fact, trial supervisors, and overall case managers. These judges decide some cases on the merits, but they also manage the trial process—ruling on objections and motions and instructing juries about the law. Trial court judges may hold Daubert hearings to determine the admissibility of scientific evidence, make determinations about the appropriate amount of bail, and conduct post-trial assessments of damage awards. In addition, trial court judges now spend much of their time managing the pre-trial and case settlement processes as well as overseeing the implementation of remedies post-trial (Resnik, 1982-83).

As fact-finders, judges may struggle to simultaneously accomplish the myriad goals that legal fact-finders attempt to achieve—making accurate factual determinations and reaching a verdict consistent with the evidence (see Pennington & Hastie, 1993); accomplishing optimal deterrence (see Becker, 1969; Cooter & Ulen, 2007); awarding appropriate compensation (Darley & Pittman, 324; Prosser & Keeton, 1984); accomplishing some measure of distributive justice (see Deutsch, 1975); punishing when appropriate and to the extent that is fitting (see Darley et al., 2000); using the appropriate rules to guide decision making (see Robbennolt, Darley, & MacCoun, 2003); or expressing their values (see e.g., Sunstein, 1996; Robbennolt, Darley, & MacCoun, 2003). Indeed, as with jurors, judges have been shown to have difficulties with some of the decisions required by legal and economic models of decision making. Specifically, judges have been shown to have trouble ignoring inadmissible evidence (see e.g., Landsman & Rakos, 1994; Wistrich et al., 2005) and evaluating scientific, expert, or statistical evidence (Gatowski et al. 2001; Kovera & McAuliff, 2000; Redding & Repucci, 1999; Wells, 1992). In addition, judges have been found to be susceptible to a variety of cognitive heuristics such as anchoring, framing, hindsight bias, the representativeness heuristic, and the egocentric bias (Guthrie et al., 2001; Rachlinski et al., 2006).

Trial court judges, however, spend much of their time engaged in tasks other than presiding over trials. Indeed, judges are presiding over fewer and fewer trials (Galanter, 2004). In their role as case managers, trial court judges have different tasks and goals than they do in their role as fact-finders –they must negotiate with parties pre-trial to settle cases, plan litigation, and manage discovery, and supervise the implementation of remedies post-trial (Resnik, 1982-83). In addition, trial court judges may be called upon to manage complex class-action or multidistrict litigation (see e.g., Galanter, 2004; Walker & Manahan, 2007).

As noted above, these case management responsibilities give rise to incentives to get cases resolved and off the docket. Judges may even utilize the symbolism of procedural justice to get cases settled. One of us (MacCoun, 2005) has described an anecdote in which a judge conducted a settlement conference in which the attorneys negotiated a settlement in the clients' absence. When the plaintiff's attorney complained that his client might not accept the settlement without getting "her day in court," the judge put on his robe, called her into an empty courtroom, and sat her on the witness chair. After she told her story, she assented to the settlement.

These case management pressures provide an additional set of goals with which trial court judges, in particular, must contend.

Appellate Judges

Appellate judges face an overlapping, but somewhat different set of decision tasks than do trial court judges. Rather than acting as fact-finders, appellate court judges are primarily engaged in the business of judicial review. Accordingly, they face other decisions—such as whether to grant cert to hear a case or whether to grant en banc review—that trial court judges do not. Similarly, appellate court judges must make decisions about whether to ask questions at oral argument and what the nature of those questions will be. Appellate court judges engage in more opinion writing and, in addition to determining how they will vote in a particular case, face decisions about whether to join a particular opinion, whether to write separately, or whether to author a dissenting opinion. Appellate judges at different levels may face differently structured decision tasks. For example, Justices of the Supreme Court exercise more control over their agenda than do intermediate appellate judges.

Elected Judges

Judges who face re-election or some form of retention election face additional pressures attendant to such elections. There is evidence that judicial decision making is influenced by such political concerns. For example, there is evidence that judges are more likely to sentence criminal defendants to death (see Brace & Hall, 1997; Brooks & Raphael, 2003; see generally Bright & Keenan, 1995) or to sentence more harshly in general (Huber & Gordon, 2004) in years in which the judges are up for re-election. Other hot button issues such as tort reform also play a role in the politics of judicial elections and have the potential to influence judicial decision making (see generally Champagne, 2005; Ware, 1999).

Judges as Goal Managers

It is clear that judicial decision making implicates a wide variety of objectives. Judges may be required to balance, for example, a desire to follow precedent against preferred policy preferences, or to balance the effort needed to act strategically against a desire to limit workload, among other goal conflicts. Moreover, in attempting to balance these varied goals, judges have at their disposal a range of decision making options or choices about how to proceed (see e.g., Molot, 1998 (discussing the "wide array of tactics available" to judges as they attempt to manage their dockets)). Models of decision making that portray judges as pursuing single objectives and that do not account for these intricacies are likely to miss important facets of the process. We therefore propose a model, the parallel constraint satisfaction model, that is explicitly designed to incorporate multiple objectives within the model.

In an attempt to encourage the development of models of legal decision making that capture these types of complexities, we have argued that "legal decision making might profitably be conceived of as a process of parallel constraint satisfaction that can be represented using connectionist models" (Robbennolt, Darley & MacCoun, 2003; also see Simon, 2004). Connectionist models endeavor to provide a framework for thinking about and modeling decision making tasks that require the integration of a range of disparate, and potentially inconsistent, information and objectives (see Read & Miller, 1998; Read et al., 1997).

Accordingly, such models are well suited to modeling decision making by judges who must balance numerous, potentially inconsistent, goals.

Constraint satisfaction networks are made up of a set of nodes or elements connected by links in a neural-like network. Each element comprises a concept, item of evidence, legal proposition, or goal, and the links or connections between elements vary in strength and valence (indicating the degree of coherence or incoherence between elements) (Read et al., 1997). The links that connect the elements represent the constraints faced by decision makers—elements that are consistent, or mutually compatible, are said to be coherent and are connected with positively valenced links, while elements that are negatively related or that inhibit each other are said to be incoherent and are negatively linked (Read et al., 1997; Thagard, 2000). Such models are sophisticated enough to take account of differential initial priorities among goals – this would be done by initially linking favored goals to elements set to higher levels of activation and less favored goals to elements with lower levels of activation (see Thagard, 2000).

Under this framework, decisions are made by finding the action that best balances the constraints among the decision elements (Read & Marcus-Newhall, 1993; Thagard, 2000). In a parallel constraint satisfaction model, this balance is struck through a process of iterative updating of the model:

> In a parallel constraint satisfaction connectionist model, each element is assigned an equal initial activation value (e.g., .01). The central aspect of the model is that the activation level of each element in the model is then updated simultaneously based on four factors: (1) the number of other elements connected to it; (2) the level of activation of those elements; (3) the strength of the links to these other elements; and (4) the valence of those links. This updating process is iterated with activation of elements spreading through the network based on the configuration of links between the elements until the activation of each element stabilizes. Once the network settles, each element is accepted or rejected based on its final degree of activation (Robbennolt, Darley, & MacCoun, 2003).

Thus, a constraint satisfaction model is a mechanism for simultaneously accounting for all of the relevant constraints on the decision, including both consciously articulated and more intuitive objectives. Such models provide a useful framework for considering judicial decision making and are broad enough to encompass the range of decisions that judges have to make, including decisions in the role of fact-finder, legal decisions at trial or on appeal, strategic decisions, and administrative decisions.

For example, parallel constraint satisfaction models have been used to model trial level decision making (see e.g., Byrne, 1995; Holyoak & Simon, 1999; Simon, 1998; Simon & Holyoak, 2004; Simon et al., 2004; Thagard, 1989). Indeed, it has been argued that '[p]rocesses of maximizing explanatory coherence are particularly well-suited for accounting for . . . decision making where the task is to evaluate the coherence of accounts presented by the prosecution and the defense" (Thagard & Kunda, 1998). In particular, fact-finders must engage in parallel constraint satisfaction as they attempt to integrate and account for the array of evidence

presented at trial in an attempt to achieve explanatory coherence.[4] That is, fact-finders attempt to come to an understanding of the facts "that fits with the available information [i.e., trial evidence] better than alternative interpretations" (Thagard, 2000, p. 16). Moreover, "the best interpretation is one that provides the most coherent account of what we want to understand, considering both pieces of information that fit with each other and pieces of information that do not fit with each other" (Thagard, 2000).

Importantly for our purposes here, parallel constraint satisfaction models can also be used to model the ways in which judges and other legal decision makers make decisions to maximize satisfaction of their varying goals, that is, to achieve what is referred to as deliberative coherence. In a model of deliberative coherence, decision makers faced with multiple, potentially inconsistent goals, seek to choose a course of action that accomplishes the greatest coherence among competing goals. The competing goals and the potential avenues open to the decision maker are linked together in ways that signify the degree to which they are compatible or incompatible (Thagard & Millgram, 1995). Decision making, then, is:

> inference to the best plan. When people make decisions, they do not simply choose an action to perform, but rather adopt complex plans on the basis of a holistic assessment of various competing actions and goals. Choosing a plan is in part a matter of evaluating goals as well as actions. Choice is made by arriving at a plan or plans that involve actions and goals that are coherent with other actions and goals to which one is committed (Thagard & Millgram, 1995, p. 440).

In essence, parallel constraint satisfaction models provide a way to account for the complex interplay among actions and goals. Specifically, we (Robbennolt, Darley, & MacCoun, 2003) have proposed a set of "goal management principles" that can describe the interrelations among the disparate goals and actions pursued by legal decision makers:

- *Principle of equifinality:* some goals may be alternately satisfied through any one of a number of actions (see Kruglanski, 2002; Anderson & MacCoun, 1999);
- *Principle of best fit:* a particular action may better fulfill some goals than others;
- *Principle of multifinality:* a particular action may sometimes accomplish multiple goals simultaneously (see Kruglanski, 2002);
- *Principle of goal incompatibility:* some goals will inevitably conflict and, thus, be difficult or impossible to satisfy concurrently.

Connectionist models of parallel constraint satisfaction accommodate these principles in various ways:

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[4] This view is consistent with the "story model" of juror cognition in which choose a verdict by constructing a "story" consistent with the trial evidence and matching that story to the available verdict choices (see Pennington & Hastie, 1986, 1988, 1992, 1993).

> a goal might be connected by positive links to more than one action (*equifinality*) and each possible action may be connected by positive links to more than one goal (*multifinality*). At the same time, the links between a goal and several different actions may have different weights (*best fit*) and some of the links between two goals or two actions may be negatively valenced (*incompatibility*). The connectionist network updates activation of the elements (goals and actions) in parallel until the network stabilizes. In this case, the final activation of the elements represents the decision maker's chosen set of selected actions or goal valuations (Robbennolt, Darley, & MacCoun, 2003).

Thus, examining deliberative coherence through parallel constraint satisfaction provides a way to formally model how decision makers such as judges "mediate among the influence of multiple, salient, and often conflicting goals and do so in a way that results in reasonable behavior that is sensitive both to the desires of the individual and the opportunities and constraints of the environment" (Read et al., 1997, p. 47).[5] Judges may, for example, be able to reach a particular desired outcome through two different analytic approaches (*equifinality*), but one approach may be contrary to precedent (*incompatibility*). A trial court judge may have at her disposal a number of case management approaches (*equifinality*): one may be the most effective at speeding the docket (*best fit*) but at the expense of party satisfaction (*incompatibility*), while another approach may simultaneously move the docket and achieve a good substantive result (*multifinality*). An appellate judge may weigh a desire to write a detailed dissenting opinion against strategic objectives or against an overwhelming workload (*incompatability*).

Consider the following extended example as one illustration of how parallel constraint satisfaction can be used to model the complexity of judicial decision making.[6] Imagine a judge who is considering a motion to suppress key evidence in a criminal trial that raises a somewhat novel, but not unprecedented issue related to the exclusionary rule. The judge is faced with the related tasks of determining the content of her ruling and deciding whether to rule from the bench or to issue a written ruling. The judge, having reviewed the evidence, is aware of its strong probative value and (again, having seen the evidence) is of the opinion that the defendant quite likely committed the crime with which he is charged and ought to be punished accordingly. Given the nature of the other evidence in the case, the judge understands that it is unlikely that the prosecution will be able to proceed without the evidence. The judge is also aware of the public sentiment surrounding the case and predicts a strong negative public reaction if the case were to be dismissed. At the same time, the judge is strongly committed to the principles underlying the exclusionary rule and believes, as an empirical matter, that following the rule and excluding evidence in appropriate cases has had and continues to have positive effects on police procedure. The judge is strongly committed to following legal

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[5] We have focused here on the decisions of individual judges. However, parallel constraint satisfaction network models can also be used to model the decisions made by groups, such as panels of judges. *See e.g.,* Thagard, 2000 (describing a model of consensus decision making).

[6] For other examples of constraint satisfaction models, see e.g. Byrne, 1995; Thagard & Millgram, 1995.

precedent. The relevant legal precedent in the judge's jurisdiction clearly requires that she find the evidence inadmissible. On the other hand, the prosecutor is urging her to follow an exception that another jurisdiction has recently carved out that would support the admission of the evidence. While the judge believes that following the approach suggested by this exception is analytically stronger than the approach currently followed in her jurisdiction and may apply to the facts of this case, she does not think that such an approach will be accepted in her jurisdiction and predicts that any ruling admitting the evidence stands a relatively high chance of being overturned on appeal. The judge enjoys writing opinions and would welcome the challenge of crafting an elegant analysis of an important legal issue; she views the appellate court as a more attractive audience for these scholarly efforts than she does the general public. She feels some need to explain her reasoning (particularly to the appellate court if she admits the evidence and to the public if she chooses not to admit it). However, as a busy trial judge, she does not have the luxury of spending a week or a month crafting a nuanced scholarly exposition of the issue.

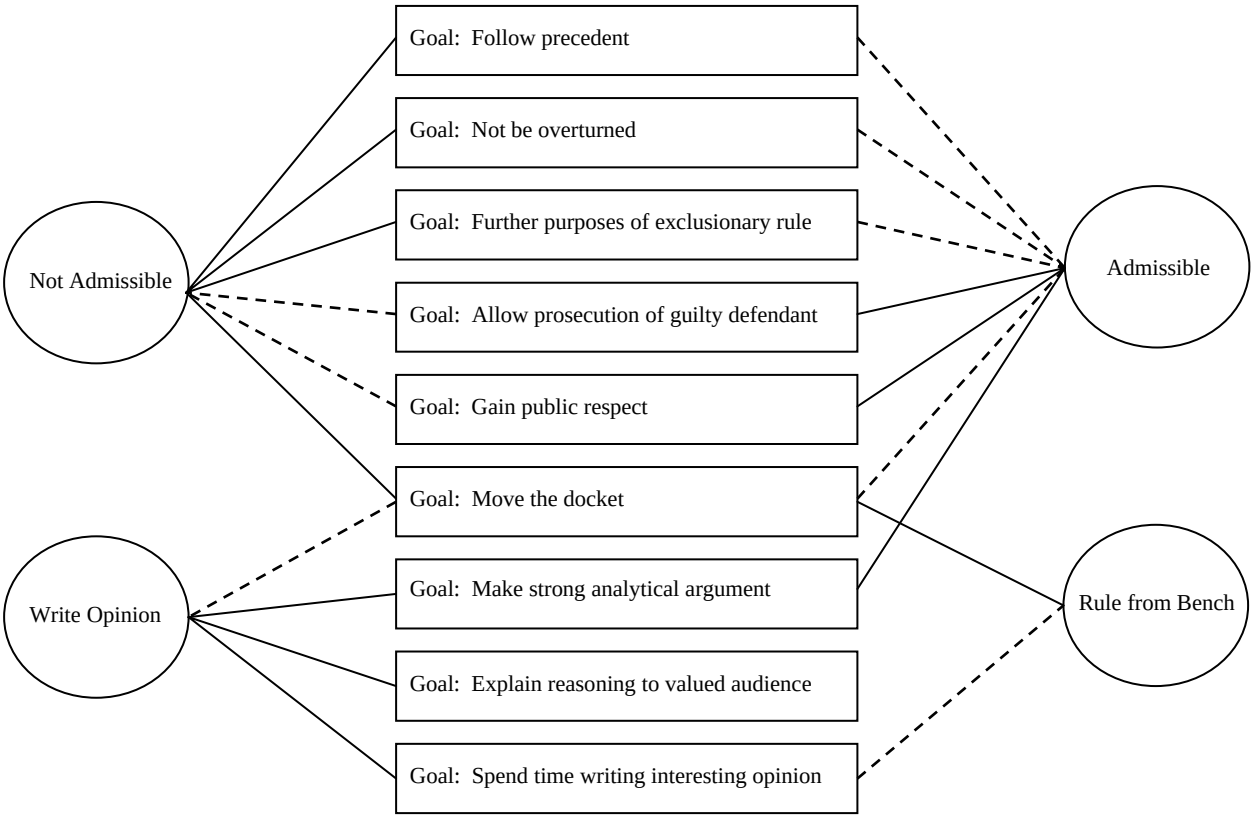

Figure 1: Parallel Constraint Satisfaction Model of Judical Decision

Figure 1 diagrams these goals and constraints in a connectionist parallel constraint satisfaction network. Solid lines represent compatible links; dashed lines represent incompatible relationships. In the model, ruling the evidence inadmissible would be consistent with the judge's understanding of the relevant precedent and with the general purposes of the exclusionary rule, would minimize the chance of a reversal, and would move the docket (as the charges would most likely be dropped). Conversely, such a ruling would be inconsistent with the judge's own best legal analysis, would be inconsistent with the judge's view of just deserts by resulting in the release of a probably guilty defendant, and would inflame public sentiment. While ruling the evidence admissible would be consistent with the judge's notions of analytical rigor, would allow the prosecution of the defendant, and would comport with public sentiment and, therefore, build public confidence in the judicial system, the judge believes that it is contrary to the relevant precedent, opening the judge up to the possibility of reversal, and would be inconsistent with the aims of the exclusionary rule. Drafting an opinion on the ruling would further the judge's goals in being analytically rigorous and in spending time engaged in the intellectual enterprise of thorough legal analysis, and might catch the attention of the judge's judicial colleagues. However, the judge is simultaneously aware of the ever-present pressure to move the docket and spending time drafting such an opinion will not further this goal.

The judge's decisions, then, involve the elaborate interplay of these myriad goals, and subjectively, such decisions can feel rather mysterious.[7] One struggles and struggles with a decision, and then all of a sudden an internal threshold is crossed and the judgment is made. Though much of the deliberation is in the form of conscious internal dialogue, the cognitive process by which the various constraints are reconciled is largely unconscious, because serial consciousness cannot represent the kind of parallel processing required to reconcile all the conflicting positive and negative activations among elements. We experience the struggle, then we feel something settle, and we then begin a secondary process of trying to rationalize in words what we have decided.

Considering judges as decision makers who must reconcile numerous objectives in carrying out a variety of different decision tasks provides an avenue toward a more nuanced view of the cognitive complexity of judicial decision making and may lead to increasingly sophisticated hypotheses about judicial behavior. Identifying the distinctive constraints faced by judges with regard to particular decision tasks and settings can give rise to testable predictions involving those constraints. For example, concern about being overturned will be salient in some contexts and for some decisions, but not others, and this difference in the constraints faced may lead to predicted differences in decision making across such contexts (e.g., differences in the citation of precedent or in the scope

[7] For the sake of simplicity, we have focused on the links between goals and actions, and have not depicted relationships between and among goals. However, a full implementation of the model would include links showing the ways in which goals facilitate or compete with one another. For example, achieving the goal of following precedent facilitates achievement of the goal of not being overturned; a link between these two goals would represent such a facilitative relationship. These extra links would make help illustrate why a simple linear regression or cognitive averaging model is unlikely to accurately represent the relative impact of each goal.

of the decision). Alternately, one might predict that alternate goals will have more influence on decision making when legal precedent is unclear (i.e., less constraining). Or consideration of workload constraints might lead one to predict more intuitive processing by judges facing greater workload pressures and more deliberation by those who are relatively unconstrained by such pressures (see Guthrie, Rachlinski, & Wistrich, forthcoming). By guiding the generation of such predictions, conceiving of judges as decision makers who attempt to simultaneously satisfy myriad goals by engaging in a process of parallel constraint satisfaction offers a model for incorporating the range of considerations that influence judicial decision making and for understanding the interplay among them.

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