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# A Theory of Procedure

John Thibaut<sup>†</sup>  
Laurens Walker<sup>‡</sup>

*The search for the most effective conflict resolution procedure requires identification of the primary objective in resolving different kinds of disputes. This Article focuses on the kind of disputes considered in the legal system and draws on the results of the authors' empirical studies to develop a general theory of procedure for attaining the objectives of "truth" and "justice" in situations of cognitive conflict, conflict of interest, and in "mixed" disputes.*

In this Article, we propose a general theory of procedure for resolving conflicts, with special attention to disputes dealt with in the legal process. For a number of years we have applied the theories and methods of social psychology in our research to examine and compare the characteristics of various procedural systems incorporated in the legal process.<sup>1</sup> Until now we have published only the reports of particular projects, with occasional speculation about more general issues. But now we have developed the body of our research sufficiently to make a more comprehensive statement. In this Article we propose a general framework for analyzing and classifying all conflict resolution procedures, including, of course, all procedures employed in the legal process.

The initial step in stating a theory of procedure is to recognize the fundamental dichotomy between the potential dispute resolution objectives of "truth" and "justice." This dichotomy, we suggest, is the necessary result of differences in the type of conflict involved in the dispute. In conflicts about the most accurate view of reality, such as scientific disputes, the objective is to determine the truth according to a standard. We suggest that an autocratic procedure is most likely to attain this objective. Conflicts about the apportionment of outcomes, such as in-

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<sup>†</sup> Alumni Distinguished Professor of Psychology, University of North Carolina at Chapel Hill.

<sup>‡</sup> Professor of Law, University of Virginia.

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1. Much of this research is summarized in J. THIBAUT & L. WALKER, PROCEDURAL JUSTICE (1975). Later work is reported in LaTour, Houlden, Walker, & Thibaut, *Procedure: Transnational Perspectives and Preferences*, 86 YALE L.J. 258 (1976) and in Houlden, LaTour, Walker, & Thibaut, *Preference for Modes of Dispute Resolution as a Function of Process and Decision Control*, 14 J. EXPERIMENTAL SOC. PSYCH. 13 (1978) [hereinafter cited as *Process and Decision Control*].

consistent claims to the division of assets or losses, are best resolved with the aim of achieving distributive justice. The main business of the legal process, our special interest, is the apportionment of outcomes; hence the appropriate goal of legal procedure is the achievement of justice. It is widely agreed<sup>2</sup> that distributive justice is attained when the ultimate outcomes are distributed to contending parties in proportion to their respective contributions or inputs to the transaction underlying the dispute; hence, we argue that the procedure most likely to produce justice is that procedure which facilitates the fullest possible report of inputs prior to determination of the distribution. In the remainder of the Article we will describe and support our proposal in detail, furnish illustrations of its application, and briefly explore the implications of our theory for legal rulemaking. We conclude with an analysis of the relatively small but important category of "mixed" disputes, which includes strong elements of both truth and justice claims, and we tentatively propose a two-stage procedure for resolving such disputes.

We wish to emphasize that our proposal is general in the sense that it is intended to apply to all instances of interpersonal conflict. In the realm of the law, we have intentionally disregarded such traditional subject matter categories as "civil procedure," "criminal procedure," and "administrative procedure." We believe that our proposal is the first effort to state a theory of procedure intended for application throughout the legal process.<sup>3</sup> The proposal is largely derived from systematically collected empirical evidence; we use the results of prior studies to build a theory in much the same way that legal practitioners and scholars use appellate opinions to develop arguments. The use of

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2. See notes 18-20 and accompanying text, *infra*.

3. Surprisingly little has been written about procedural theory. In the area of civil procedure, Millar is the only person in American legal scholarship offering a theoretical methodology. Millar, *The Formative Principles of Civil Procedure*, 18 ILL. L. REV. pt. I, at 1; pt. II, at 94; pt. III, at 150 (1923), revised and reprinted in A. ENGELMANN, HISTORY OF CONTINENTAL CIVIL PROCEDURE 3-81 (Continental Legal History Series, vol. 7, 1927). See also Scott, *Two Models of the Civil Process*, 27 STAN. L. REV. 937 (1975). In criminal procedure more attention has been paid to conceptual materials. The seminal theorist is Packer, who proposed the examination of polar theoretical models. See H. PACKER, THE LIMITS OF THE CRIMINAL SANCTION, pt. 2 (1968); Packer, *Two Models of the Criminal Process*, 113 U. PA. L. REV. 1 (1964). The Packer proposal was followed by several noteworthy statements about theory in criminal procedure—all of which continue the emphasis on theoretical models. See Damaska, *Structures of Authority and Comparative Criminal Procedure*, 84 YALE L.J. 480 (1975); Goldstein, *Reflections on Two Models: Inquisitorial Themes in American Criminal Procedure*, 26 STAN. L. REV. 1009 (1974); and Griffiths, *Ideology in Criminal Procedure or A Third "Model" of the Criminal Process*, 79 YALE L.J. 359 (1970). In the administrative procedure area there has been very little development of theory. Verkuil stands as the first scholar to propose "the beginning of a theory" to evaluate informal adjudication procedures in particular situations. See Verkuil, *A Study of Informal Adjudication Procedures*, 43 U. CHI. L. REV. 739 (1976). See also Mashaw, *The Supreme Court's Due Process Calculus for Administrative Adjudication in Mathews v. Eldridge: Three Factors in Search of a Theory of Value*, 44 U. CHI. L. REV. 28 (1976).

this empirical "case method" to state a theory of procedure also appears to be original.

## I

### THE OBJECTIVES OF CONFLICT RESOLUTION

The theory begins with the distinction between the two conflict resolution objectives of "justice" and "truth." We contend that in most instances one or the other of these objectives is dictated by the subject matter of the dispute, or more specifically by the outcome relationship that exists between the individual parties to the conflict.

At one extreme, the relationship of the parties may be such that one resolution of the dispute will uniformly enhance the outcomes of all interested parties, while a different resolution will uniformly reduce these outcomes. ("Will this path lead us out of the forest, or that one?") In this situation, it may be said that the interests of the parties are coincident, and if any dispute arises it will entail simply a "cognitive" conflict<sup>4</sup>—a dispute as to which resolution is to the common advantage. Everyone's objective will be to find that jointly preferred solution. Conflicts of this sort will often be very easy to resolve, especially where there is no strongly held prior commitment to a particular view of reality. Here there may be virtually no process, as such, of dispute resolution, and agreement may be spontaneously achieved as soon as a solution is proposed, particularly if the disputants have at hand a standard—a meter stick, a dictionary, a map—for measuring the proposed solution.

Disputes that develop in scientific inquiry are the prototype of cognitive conflict in a setting of common interest.<sup>5</sup> Scientists are socialized in an ethic of disinterestedness in the pursuit of widening and deepening their commonly held store of knowledge and understanding. This ethic serves to suppress conflicts of personal or material interest in furtherance of a common stake in the scientific enterprise. In principle, as long as scientists adhere to this idealized role, their conflicts are purely cognitive; competing hypotheses are entertained for the purpose of ascertaining the truth. Typically, in "normal" science,<sup>6</sup> the validity or relative adequacy of rival hypotheses is determined by submitting

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4. See Hammond, Todd, Wilkins, & Mitchell, *Cognitive Conflict between Persons: Application of the "Lens Model" Paradigm*, 2 J. EXPERIMENTAL SOC. PSYCH. 343 (1966). See also Rappoport, *Interpersonal Conflict in Cooperative and Uncertain Situations*, 1 J. EXPERIMENTAL SOC. PSYCH. 323 (1965).

5. For an amusing account of how scientists might resolve a disagreement about the length of one edge of a cubical block, see G. HOLTON, INTRODUCTION TO CONCEPTS AND THEORIES IN PHYSICAL SCIENCE at 221-22 (1952).

6. See T. Kuhn, *The Structure of Scientific Revolutions* (2d ed. 1970). By Kuhn's analysis most of the business of science is conducted within normal science, in which the scientific community holds in common and implicitly accepts a conceptual and instrumental framework, a "para-

the question at issue to empirical or formal tests by experiment or mathematical analysis.<sup>7</sup>

At the other extreme of the subject matter continuum is the situation of maximum conflict of interest.<sup>8</sup> In this case the respective interests of the parties are perfectly opposed because a particular solution will maximize the outcome of one of the parties only at the expense of the other. Here the ultimate test of any particular solution is the character of the distribution of outcomes among the interested parties, and no solution will ultimately be recognized as "correct" by all of them. Hence, the objective of resolving conflicts of interest must frankly be seen as something other than finding the "true" or scientifically valid result.<sup>9</sup> From the time of Aristotle the objective in resolving this kind of dispute has been characterized as "justice."<sup>10</sup>

The legal process is concerned, for the most part, with the resolution of conflicts of interest. This conclusion is readily apparent in most civil litigation. The conflict of interest is patent in a dispute between two parties as to the proper distribution between them of certain property. Examples might include an action to determine the ownership of land or a dispute about the distribution of assets comprising an estate or trust. In these situations a distribution favoring one party will be correspondingly unfavorable to the opposing party. Actions for personal injury or for breach of contract also involve a conflict of interest relationship, for a distribution that favors one party will disfavor the opposing party. One party receives an amount of money damages and the other must pay this amount, or one party receives nothing and the opposing party retains a benefit. Criminal litigation also involves a conflict of interest, because the prosecutor (as surrogate for society) and the defendant seek incompatible outcomes.<sup>11</sup>

It is true, of course, that the legal process is often concerned with resolving disputes about "facts," and factfinding can be determinative when the conflicting justice claims are controlled by established legal

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digm." See note 59 *infra*. It is the paradigm that provides the context and meaning to the scientist's observations.

7. We realize that we are being simplistic in the foregoing characterization of science, but we accept the risks in the interest of dramatizing a theoretical end-point on the substantive continuum.

8. See J. THIBAUT & H. KELLEY, *THE SOCIAL PSYCHOLOGY OF GROUPS* (1959); H. KELLEY & J. THIBAUT, *INTERPERSONAL RELATIONS: A THEORY OF INTERDEPENDENCE* (1978, in press).

9. Our own research on this topic has shown that persons whose interests are in direct conflict place no value on the attainment of "truth" and, indeed, truth is not for them a salient or relevant consideration. This contrasts sharply with the values of those whose interests are congruent: for those people the attainment of truth is a major objective. See LaTour, Houlden, Walker, & Thibaut, *Some Determinants of Preference for Modes of Conflict Resolution*, 20 J. CONFLICT RESOLUTION 319 (1976 [hereinafter cited as *Determinants of Preference*]).

10. See text accompanying notes 18-21 *infra*.

11. See text following note 55 *infra*.

rules. But typically determinations of fact are subordinate to the justice objective. The purpose of factfinding in the legal process contrasts sharply with the purpose of factfinding in scientific inquiry. In science the facts found have an enduring significance because they guide future conduct. The facts found concerning the characteristics of objects in flight are relied on by every airplane pilot; facts determined about the effects of particular drugs guide physicians in treating patients. In contrast, the significance of factual determinations in a legal proceeding generally ends with the division of outcomes and there is no future reliance on the cognitive decision. In an action to determine the ownership of land, a defense that the plaintiff's deed was not signed by the grantor requires factfinding. But the facts relating to the execution of the deed will have no significance after a decision is made determining ownership. Similarly, in a criminal case the question of whether the defendant fired the pistol has no significance after the determination of guilt or innocence and the resulting distribution of outcomes.

In summary, where resolution of the conflict of interest is primary, and the cognitive conflict has significance only in contributing to or leading to a resolution of that interest conflict, the objective is "justice." On the other hand, where resolution of the cognitive conflict has primary significance in its own right, the objective is "truth." It is important to recognize that it is not necessary or even possible simply to choose the truth objective or the justice objective. The goals are dictated by the underlying character of the dispute and hence cannot be established independently.

## II

### A FRAMEWORK FOR ANALYSIS

As we have defined them, both cognitive conflict and conflict of interest involve at least two and often three parties: two disputants and a third-party adviser or decisionmaker.<sup>12</sup> According to our view, the purpose of procedural rules is to define and maintain certain roles for the parties involved in a conflict. Recognition of the two possible objectives of conflict resolution establishes the appropriate starting point for a consideration of procedure, since the efficacy of the rules necessarily must be judged in terms of the objective of the process of conflict resolution. Our theory proposes a general framework for analyzing procedural alternatives in terms of these objectives.

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12. We use the term "third party" to indicate some person other than a disputant who takes part in resolving the conflict. In particular systems, the third party may be, for example, an arbitrator, mediator, judge, jury, or autocrat. For purposes of analysis, we make the simplifying assumption that there are only two disputants, but the model can easily be extended to disputes involving three or more parties.

The distribution of control among the procedural group participants is the most significant factor in characterizing a procedural system. "Control" involves at least two elements: control over the decision and control over the process.<sup>13</sup> Decision control is measured by the degree to which any one of the participants may unilaterally determine the outcome of the dispute. For example, where a third-party decisionmaker alone may order a resolution to be imposed, the decisionmaker has total decision control. Control over the process refers to control over the development and selection of information that will constitute the basis for resolving the dispute. Participants given authority to conduct an investigation and to plan the presentation of evidence may be said to exercise considerable process control. If one participant has complete authority both to establish the evidence and to render a decision, that participant exercises total control over the procedure.

The allocation of process control and decision control elements determines the overall distribution of control among the participants; it therefore determines the essential character of the procedures. All changes in procedure may be measured according to their effects on this central control relationship.

To illustrate possible control relationships, consider a simple set of common procedural systems as one might view a series of *tableaux vivants*. In the beginning there are only the disputing parties, and they have complete control over the selection of information that will form the basis of the decision and over the mode of presenting that information. Furthermore, the disputants together exercise complete control over the final outcome of the dispute. This procedure will be recognized as bilateral bargaining and establishes the starting point of the proposed perspective.

With the appearance of a third-party decisionmaker or adviser, control inevitably begins to shift away from the disputants. In the next procedure the third party is present, but the disputants retain most of the process and decision control because they remain actively charged with presenting information to each other and to the third party, while the third party is only allowed to propose or recommend a settlement. This procedure is generally known as mediation. The next scene may be called the "moot." Power has drifted away from the disputants as the third party has gained the authority to share in the decisionmaking by exercising a veto. Here, all three participants in the group must agree on a decision or on a particular outcome. Along with this shift in decision control, some control over the process passes to the third party, who acquires the authority to ask questions and thus to control to some degree the nature of evidence and the mode of presentation.

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13. See *Process and Decision Control*, *supra* note 1.

As control continues to shift away from the disputants, the third-party decisionmaker gains the authority to impose a decision after listening to evidence presented by the parties. We use the term "arbitration" for this procedural model, which conforms in a basic way to the adversary process which is traditional in American civil and criminal litigation. In the final tableau, the decisionmaker not only holds the power to impose an outcome, but, in contrast to arbitration, the decisionmaker also has complete authority over the development and presentation of evidence. The shift of control away from the parties has been fully realized and the progression from bargaining to autocratic decisionmaking is complete.<sup>14</sup>

### III

#### STATEMENT OF THEORY

We have so far described the objectives of social conflict resolution (truth or justice) and a framework for analysis that provides a general scheme for understanding the range of choice of procedure. We now turn to the core of our concern, the relationship between systems of procedure and the objectives of conflict resolution.

We consider first, and briefly, the optimal procedure for determining truth. In terms of our procedural continuum, an autocratic system delegating both process and decision control to a disinterested third party is most likely to produce truth.<sup>15</sup> Giving the decisionmaker complete process control permits the creation of a single "selection strategy" that will generate information appropriate to the inquiry,<sup>16</sup> unlike

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14. It will be noted that certain familiar figures have not appeared in the tableau. There were no representatives or attorneys for the disputants, and there were no assistants or investigators for the decisionmaker. These participants are not necessary to describe the basic framework but may be seen as elements whose presence tends to enhance the process control of either the disputants or the decisionmaker, according to the role assignment given the additional participants. For example, if the disputants are assigned representatives in any one of the basic models, these representatives, usually expert in their work, increase the process control of the disputing parties over the small group relationship and, therefore, tend to move any model toward the bargaining end of the continuum. Substantial confirmation of this proposal is found in the report of Popkin, *The Effect of Representation in Nonadversary Proceedings—A Study of Three Disability Programs*, 62 CORNELL L. REV. 989, 1030 (1977) ("There is no doubt that represented claimants are more likely than unrepresented claimants to insist on procedural safeguards."). Similarly, when expert assistants in the role of investigators are added to a particular model, these additions tend to enhance the process control of the decisionmaker and, hence, move the character of the procedure in the direction of the autocratic model. Furthermore, when any established fourth party role is modified by shifting allegiance toward either the disputants or the decisionmaker, the character of the model is affected.

15. See Lind, Thibaut, & Walker, *Discovery and Presentation of Evidence in Adversary and Nonadversary Proceedings*, 71 MICH. L. REV. 1129 (1973), where it is shown that the evidence presented and assembled for decisionmaking by autocratic processes represents the discovered evidence more accurately than does that presented by adversary processes.

16. J.S. BRUNER, J. GOODNOW, & G. AUSTIN, *A STUDY OF THINKING* (1956). See also Kelley, *Attribution Theory in Social Psychology*, 15 NEB. SYMP. MOTIVATION 192 (1967).

a control relationship in which the decisionmaker merely assesses information presented by the disputants. Such a selection strategy increases the likelihood of obtaining the relevant information, reduces the strain of assimilating and tracking information, and minimizes the risk of failing to reach the correct solution within a limited number of attempts. Furthermore, disputants with congruent interests and an agreed upon standard (*e.g.*, a meter stick or a particular level of statistical significance) for resolving cognitive conflict can comfortably delegate both process and decision control to a properly trained third party.<sup>17</sup>

### A. *The Achievement of Distributive Justice*

The special concern of this Article is with the justice objective, because it is necessarily the primary objective of the legal process. Homans, who (along with Adams<sup>18</sup>) has been a major influence<sup>19</sup> in stimulating contemporary social science research and theory on distributive justice (or, as it is sometimes called, equity theory), recently characterized the study of distributive justice as being concerned with the relationship between the rewards received by the parties involved and the contributions they have made to the transaction. "When the ratio of their rewards is equal, as perceived by *all* the parties, to the ratio of their contributions, then the distribution of reward is said to be fair, just, or equitable."<sup>20</sup> This conception of distributive justice is empirical and relativistic; it is not a philosophical ethic. It is grounded in the *perceptions* that justice has or has not been done, according to the cultural or subcultural standards that define the values of contributions or inputs and of rewards<sup>21</sup> or outcomes.

As applied to litigation, whether civil or criminal, distributive justice generally takes the form of evaluating the relative weight of each party's claims for a favorable distribution of the outcomes and then

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17. See *Determinants of Preference*, *supra* note 9. Indeed, though it is common practice to check the logic, observations, and computations of the investigator and often to replicate the entire procedure, these measures are intended to eliminate information processing errors before the investigator's conclusions enter into the public domain of science; they are in no sense intended to evaluate the "justice" or "fairness" of his conclusions. Justice and fairness, or responsibility to social concerns, are of course involved in the allocation of scarce resources to scientific projects and in the selection of problems for applied research in science.

18. See Adams, *Inequity in Social Exchange*, in 2 *ADVANCES IN EXPERIMENTAL SOC. PSYCH.* 267 (1965).

19. See G. HOMANS, *SOCIAL BEHAVIOR: ITS ELEMENTARY FORMS* (1961), especially at 232-64.

20. Homans, *Commentary*, in 9 *ADVANCES IN EXPERIMENTAL SOC. PSYCH.* 231, 231-32 (1976) (emphasis in original). Comprehensive reviews of behavioral research on distributive justice are contained in G. LEVENTHAL, *FAIRNESS IN SOCIAL RELATIONSHIPS* (1976) and E. WALSTER, E. BERSCHIED, & G. WALSTER, *EQUITY THEORY AND RESEARCH* (1977).

21. We conceive of "reward" here in a broad sense to include the possibility of negative rewards or costs.

rendering an allocative decision that reflects these relative weights. These claims are primarily arguments designed to maximize the party's perceived causal responsibility for, or contribution to, "good" consequences (such as a potential heir's claim of a causal role in improving the value of property that is about to be divided) or to minimize the party's attributed responsibility for a charge of "bad" consequences (such as a claim of extenuating circumstances by a defendant charged with homicide).

A procedural system designed to achieve distributive justice as thus defined will function best if process control is assigned to the disputants. This is the optimum control relationship because the disputing parties themselves are best qualified to describe their respective inputs or contributions to a transaction.

First, the disputing parties typically have more information than does a third party about their respective inputs and, therefore, can better plan the reporting of this information. Lacking direct knowledge of the feelings or intentions behind the participants' actions, a third party must always consider the participants' experience from a normative perspective grounded in the third party's *own* history. It seems almost inevitable that third parties will bias contextual information about a dispute by asking questions and developing information that conforms to a model formed by their own experiences, rather than the experience of the participants in the dispute. Therefore, where substantial process control is given to third parties, information developed about particular cases will tend in important ways to conform to the normative or stereotypic expectations of the investigator or decisionmaker.

Recent psychological research into the process by which persons make attributions about causality<sup>22</sup> suggests a second reason for believing that participants are best qualified to develop and present information. Third-party decisionmakers interpret and evaluate the behavior of the disputants differently than do the disputants themselves, and these differences will affect their conclusions as to causality. The research suggests that even if both the observer and the actor had the same information available, they would adopt different perspectives toward the act.<sup>23</sup> For the observer the actor's behavior itself is obtrusively sali-

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22. See generally F. HEIDER, *THE PSYCHOLOGY OF INTERPERSONAL RELATIONS* (1958); E. JONES, D. KANOUSE, H. KELLEY, R. NISBETT, S. VALINS, & B. WEINER, *ATTRIBUTION: PERCEIVING THE CAUSES OF BEHAVIOR* (1972).

23. See E. JONES & R. NISBETT, *THE ACTOR AND THE OBSERVER: DIVERGENT PERCEPTIONS OF THE CAUSES OF BEHAVIOR* (1971). See also Hansen & Lowe, *Distinctiveness and Consensus: The Influence of Behavioral Information on Actors' and Observers' Attributions*, 34 *J. PERSONALITY & SOC. PSYCH.* 425 (1976); Hansen & Donoghue, *The Power of Consensus: Information Derived from One's Own and Others' Behavior*, 35 *J. PERSONALITY & SOC. PSYCH.* 294 (1977); Storms, *Videotape and the Attribution Process: Reversing Actors' and Observers' Points of View*, 27 *J. PERSONALITY & SOC. PSYCH.* 165 (1973). For application to actors and observer in a planned bur-

ent; it stands out as figure against ground, "it tends to engulf the field."<sup>24</sup> Thus, for the observer the proximal cause of action is the actor himself. In contrast, the actor's attention is focused outward, toward factors in the environment that he interprets as placing constraints, pressures, and demands on him. For the actor the situational cues and forces in the environment are the proximal cause.

The observer's perspective leads him to attribute the behavior to stable characteristics of the actor<sup>25</sup> such as "laziness," "bad character," or "carelessness," or to "virtue" or "competence." Research has shown many instances where the observer's interpretation of behavior is simply wrong.<sup>26</sup> A legal setting where a normative standard directs the decisionmaker in how to evaluate behavior will institutionally curb the observer's bias toward attributing behavior to the actor's disposition or character. Still, the decisionmaker's special perspective will color the judgment of whether the actor's behavior meets the normative standard.<sup>27</sup>

Thus, this actor-observer attribution research suggests that the disputing parties themselves ought to control the description of their respective inputs. They can be relied on to describe possibly important contextual factors relating to the dispute that are likely to be overlooked when information is developed from the narrower perspective of the decisionmaker.<sup>28</sup>

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glary, see West, Gunn, & Chernicky, *Ubiquitous Watergate: An Attributional Analysis*, 32 J. PERSONALITY & SOC. PSYCH. 55 (1975). For a somewhat different view, see Monson and Snyder, *Actors, Observers, and the Attribution Process*, 13 J. EXPERIMENTAL SOC. PSYCH. 89 (1977).

24. F. HEIDER, *supra* note 22, at 54.

25. Hansen & Donoghue, *supra* note 23, show this effect to be strongest when the actor's behavior is different from what the observer knows his own behavior to be.

26. See, e.g., B. LATANE & J. DARLEY, *THE UNRESPONSIVE BYSTANDER* (1970); Jones & Harris, *The Attribution of Attitudes*, 3 J. EXPERIMENTAL SOC. PSYCH. 1 (1967); Nisbett, Legant, & Maracek, *The Causes of Behavior as Seen by Actor and Observer* (1971) (unpublished manuscript, Yale University). The actor's interpretation may be wrong, too. See Nisbett & Wilson, *Telling More Than We Can Know: Verbal Reports on Thought Processes*, 84 PSYCH. REV. 231 (1977).

27. See, e.g., Landy & Aronson, *The Influence of the Character of the Criminal and His Victim on the Decision of Simulated Jurors*, 5 J. EXPERIMENTAL SOC. PSYCH. 141 (1969); Sigall & Landy, *Effects of the Defendant's Character and Suffering on Juridic Judgment: A Replication and Clarification*, 88 J. SOC. PSYCH. 149 (1972).

28. The attribution research also suggests the desirability of shared control in the procedural group because disputants and decisionmakers bring different information and different information processing techniques to the resolution of the dispute. The decisionmaker can be expected to provide a normative evaluation of the behavior while the actor will bring attention to situational factors unique to the particular case. These different perspectives parallel in some respects the differences between the traditional concepts of "law" and "equity," at least to the extent that equity tended to concern itself with qualifying or mitigating situational factors unique to the particular case, whereas law applied normative standards to reported or observed behavior. See generally D. DOBBS, *REMEDIES* 24-134 (1973). Indeed, our research suggests that litigants who have claims based on "equity" prefer (significantly more than do legally oriented litigants and

The assertion that the parties themselves are best able to describe their own inputs might seem to imply, in terms of our analytic framework, that bargaining is a procedure that is very likely to produce justice. Bargaining will prove unsuccessful in practice, however, because in cases of high conflict of interest the disputing parties will not be able to reach a settlement.<sup>29</sup> Our research suggests the need, under conditions of high conflict of interest, to adopt a procedural model which, like bargaining, reserves virtually all process control to the disputants, but which, unlike bargaining, assigns decision control to a third party. These conditions are met at the point on the continuum we call "arbitration."<sup>30</sup> The distribution of control at this point affords the disputants an adequate opportunity to develop the presentation, yet recognizes the necessity for insuring that the dispute be resolved in spite of the severe conflict of interest.

The foregoing analysis demonstrates that the procedural model best suited to the attainment of distributive justice in disputes entailing high conflict of interest is arbitration, or more specifically in legal settings, the Anglo-American adversary model. Most of the process control rests with the disputants, who are able to present their claims from their own perspectives, with full particularities and contexts. The impartial decisionmaker hears the contending presentations, evaluates the relative weights of the input claims, and renders the decision that distributes the outcomes. The freedom of the disputants to control the statement of their claims constitutes the best assurance that they will subsequently believe that justice has been done regardless of the verdict.<sup>31</sup> And though they must exercise this kind of process control, they are in no position to evaluate the relative weights of the rival claims. Decision control must, therefore, be in the hands of a third party who applies a normative standard to the conflict between idiographic

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third parties) procedures that retain high degrees of process control for the disputants. See *Process and Decision Control*, *supra* note 1.

29. This conclusion is supported by our earlier empirical study of comparative pretrial conference procedures. Walker & Thibaut, *An Experimental Examination of Pretrial Conference Techniques*, 55 MINN. L. REV. 1113 (1971). This investigation of the effects of high versus low conflict of interest (among other factors) on the course of conference showed that significantly fewer cases were settled by disputants in the high conflict condition. This was true even though the procedure employed in the conference contained some elements of mediation that gave assistance to the disputants in attempting to agree on a settlement. See also Erickson, Holmes, Frey, Walker, & Thibaut, *Functions of a Third Party in the Resolution of Conflict: The Role of a Judge in Pre-Trial Conferences*, 30 J. PERSONALITY & SOC. PSYCH. 293 (1974).

30. We use the term "arbitration" in a more general sense than its common usage to describe a contractually agreed on means of dispute settlement in labor-management collective bargaining agreements.

31. Evidence for this is shown in Walker, LaTour, Lind, & Thibaut, *Reactions of Participants and Observers to Modes of Adjudication*, 4 J. APPLIED SOC. PSYCH. 295 (1974). See also J. THIBAUT & L. WALKER, *supra* note 1, at 81-96.

claims.<sup>32</sup>

Our endorsement of the adversary model as likely to obtain distributive justice is strictly limited to our definition of that model as a system of legal decisionmaking that assigns virtually all process control to the disputing parties but that reserves decision control to the judge or jury. This definition results from applying the terms of our theory to observations of operating systems and is completely different from the "combat" or "game" concept of the adversary system, which has been the subject of occasional support<sup>33</sup> and much criticism.<sup>34</sup> In one sense the critics have been correct—it is foolish to claim that justice may be done by conducting a modern courtroom version of the tournament of knights. But in a more fundamental way the critics have been wrong because they have failed to perceive that a particular distribution of control is the essence of traditional Anglo-American procedure. Our endorsement of the adversary model is based on this understanding about control, an understanding that is derived from our empirical studies.

### B. *Some Practical Constraints*

Our argument concerning the optimal distribution of process and decision control in conflict resolution groups is meant to apply generally to the legal process, though we recognize limitations on its applicability in certain situations. One such situation arises when the outcome of a dispute is controlled by a precise substantive or normative rule. In order for the disputants to maintain full process control, the rule of law must be general, so that claims based on circumstance and context are honored as relevant. Maximum disputant control may be realized where a traditional or experiential law applies because the norms are merely suggestive, and thus provide latitude for the expression of input claims emphasizing special considerations. Thus, when a flexible common law standard of due care is displaced by a rigid statutory rule such as a speed limit, the legislature is preempting process control and transferring it from the disputants to the decisionmaker. Though in recent

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32. The preceding paragraph is a statement of the relationship between procedural justice and distributive justice when conflict of interest is high. Distributive justice becomes progressively less of an issue as outcome relationships move toward a harmony of interests. When commonality of interest dominates the relationship, there is little temptation for either party to exploit the other, because to hurt the other is to hurt oneself. Hence, inequity is unlikely to occur. See H. KELLEY & J. THIBAUT, *INTERPERSONAL RELATIONS: A THEORY OF INTERDEPENDENCE*, chs. 5 & 10 (1978, in press). Note also Aristotle's comment: "Where men are friends, there is no need of justice . . ." ARISTOTLE, *THE NICHOMACHEAN ETHICS*, Book VIII, sec. i.

33. See, e.g., Wyzanski, *A Trial Judge's Freedom and Responsibility*, 7 REC. A. B. CITY N.Y. 280, 285 (1952).

34. See, e.g., J. FRANK, *COURTS ON TRIAL* 80-102 (1949); Pound, *The Causes of Popular Dissatisfaction with the Administration of Justice*, 29 REP. A.B.A., pt. 1, at 395, 404-06 (1906); A. GUERARD, *TESTAMENT OF A LIBERAL* 114, 115 (1956).

years there has been considerable codification in American law, the influence of the common law heritage remains dominant, so that circumstance and context remain generally relevant. Even in the case of claims created by statute, the main body of normative law is often experiential in nature. One excellent example of the persistence of the common law tradition is the case by case development of federal securities law stemming from the enactment of section 10(b) of the Securities Act of 1934 (and from rule 10b-5).<sup>35</sup>

When rules of law do become highly differentiated and particularized, such considerations as circumstance and context lose their relevance in the courtroom or other decisionmaking forum. They are already categorically incorporated in the codification of the rules, which then need only be consulted for a specification of the decision. Not only does this reduce the disputants' process control, but it also transforms the nature of the third party's decision control. The decisionmaker becomes a scholar of the code, a sophisticated factfinder whose task is to match the disputants' actions with the relevant statutory provision.<sup>36</sup> The decisionmaker's function is directed less toward justice and more toward truth.<sup>37</sup>

Of course, specificity in rules may enhance perceptions of the fairness of the legal system to the extent that it increases evenhandedness in the administration of justice. Furthermore, in elaborating rules of law and making them more specific, the interest of legislators is at least in part to advise and possibly to deter the potential violator.<sup>38</sup> Some erosion of justice in the courts may be viewed as a necessary trade-off against the benefits of codification as *caveat*.<sup>39</sup>

The substitution of legislative judgments for case by case determinations of distributive justice in the courts will hinder the achievement of justice unless the legislative process compensates the disputants for the loss of process control in the courts. While legislatures assuredly can neither anticipate nor accommodate the idiographic detail of all future disputes, they can adopt procedures that protect the process control of representatives of classes of potential disputants. This scheme

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35. See generally 2 A. BROMBERG, *SECURITIES LAW: FRAUD* (1967, updated through 1977).

36. Decisions made by juries would moderate this tendency. See Sewell, *Law-Courts and Dreams*, in *THE LOGIC OF PERSONAL KNOWLEDGE* 179, 183 (1961).

37. The mere availability of a standard shifts the preferences of all three parties towards an "autocratic" procedure, largely because they believe it most likely to determine the "truth." See *Determinants of Preference*, *supra* note 9.

38. The greater effectiveness of highly specific rules as a deterrent is documented in Thibaut, Friedland, & Walker, *Compliance with Rules: Some Social Determinants*, 30 *J. PERSONALITY & SOC. PSYCH.* 792 (1974).

39. Legislators may view criminal violations as a greater danger to society than civil offenses and, therefore, might be more strongly motivated to attempt deterrence of crime through codification. The consequence would seem to be a sharper restriction of disputant process control (with a concomitantly larger shift to truth finding) in criminal than in civil procedures.

would require that all sides be represented at legislative hearings conducted in an adversarial format, a process radically different from the autocratic model now employed by legislative committees.<sup>40</sup> Present legislative procedures, however, are likely to produce the highly specified codification of law that we have argued diminishes justice.

Even radical change in the legislative process could not, as a practical matter, prevent considerable diminution in the overall perception of justice. The inherent problems in anticipating circumstance and context in future disputes about the distribution of outcomes suggest that citizen process control in the legislature cannot be an adequate substitute for disputant process control in the decisionmaking forum.<sup>41</sup>

A second limitation on our argument arises when the disputants have insufficient resources to present their input claims fully. In our ideal model, disputants are assumed to be uniquely capable of guiding the presentation of their own claims. As a practical matter, however, their resources are often inadequate to communicate this unique perspective effectively. Our model of a procedure for attaining justice, therefore, suggests that disputants who would otherwise be unable to exercise effective process control should be provided assistance.

The argument also suggests that resources available to improve the court system—or any agency for resolving conflicts of interest—ought to be applied first to assist disputants in the presentation of their claims and only secondarily to improve the decisionmaking function. Such a plan of allocating limited resources would maximize the quality of justice that limited funds could provide.<sup>42</sup>

#### IV

#### APPLICATION OF THEORY

We have stated our theory in quite general terms so that it will be useful to policymakers in a wide variety of situations where it is necessary to choose among conflict resolution procedures. The theory can be used to assess the likely impact of systems of procedure, or parts of

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40. See generally J. HAMILTON, *THE POWER TO PROBE, A STUDY OF CONGRESSIONAL INVESTIGATIONS* (1976).

The professional lobbyist provides a degree of vicarious participation in the legislative process, but many concerned persons will not be able to afford this kind of representation and will not otherwise be able to exercise process control.

41. Insofar as codification leads to the use of adversarial procedures in legislative hearings and autocratic procedures in the courtroom, decisionmakers in both settings tend to deal with the justice and truth questions separately. For a discussion of the form that such a two-stage procedure might take, see text accompanying notes 68-80 *infra*.

42. Compare this conclusion with the suggestion that judicial assistance in the development of evidence be introduced through the parties and their attorneys rather than directly. Saltzburg, *The Unnecessarily Expanding Role of the American Trial Judge*, 64 VA. L. REV. 1 (1978).

systems, on the appropriate resolution objectives for particular conflicts.

*A. The Unsuitability of the Scientific Method for the Legal System*

A number of modern American legal writers have recommended that the scientific method be imported into the legal process. These writers have perhaps been inspired by the ideal of the dispassionate scientific researcher persistently seeking full information in the quest for truth. One group of theorists has expressly called for the use of the scientific method in legal decisionmaking (as well as in other areas); another group has spoken more generally of centralized judicial control in all facets of the trial, championing in essence the means of the scientific method without employing its terminology.

Perhaps the most extreme statement of the first viewpoint is to be found in the work of Beutel,<sup>43</sup> who advocates an experimental jurisprudence based on the scientific method. Beutel argues that the adversary method does not produce social justice because it rests on the false proposition that truth can be demonstrated by argument, while the modern scientific understanding is that truth can be shown only by repeated applications of the experimental method.

Brett is only slightly more restrained in calling for the use of scientific method in legal decisionmaking.<sup>44</sup> He proposes that the judge work in the same manner as the scientist, initially formulating an hypothesis and then proceeding to test it vigorously by examining all existing cases as well as considering the impact of the hypothesis on future disputes. Like Beutel, Brett sees little merit in the adversary system, calling it more nearly a battle between the parties than a search for truth. In his view, party control of evidence and the concomitant restrictions on the court's activism in developing information offer little hope that truth will emerge from an adversary proceeding. Brett suggests that the adversary system be replaced by an inquisitorial method, which more closely approximates a scientific investigation.<sup>45</sup>

Others have argued for reforms that incorporate most of the significant procedural characteristics of the scientific method into legal decisionmaking, although they have not expressly referred to science in their proposals.<sup>46</sup>

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43. See F. BEUTEL, *EXPERIMENTAL JURISPRUDENCE AND THE SCIENTIST* (1975). See generally F. BEUTEL, *DEMOCRACY OR THE SCIENTIFIC METHOD IN LAW AND POLICY MAKING* (1965) and F. BEUTEL, *SOME POTENTIALITIES OF EXPERIMENTAL JURISPRUDENCE AS A NEW BRAND OF SOCIAL SCIENCE* (1957).

44. See P. BRETT, *AN ESSAY ON CONTEMPORARY JURISPRUDENCE* 53 (1975).

45. Brett, *The Implications of Science for the Law*, 18 MCGILL L.J. 170 (1972).

46. See, e.g., J. FRANK, *supra* note 34; A. VANDERBILT, *MEN AND MEASURES IN THE LAW* (1949). These are by no means isolated examples of discontent but are representative of a significant jurisprudential movement. See also Gény, *Judicial Freedom of Decision: Its Necessity and*

Application of our theory shows that the proposals of the scientific jurists are, for the most part, unwise and inappropriate. The root of their error appears to be in the misconception that the fundamental objective of the legal process is the discovery of truth. This view suggests that these writers believe that legal disputes are characterized by high cognitive conflict and low conflict of interest. To the contrary, our theory demonstrates that legal institutions are mainly concerned with disputes involving low cognitive conflict and high conflict of interest. Therefore, the primary goal of the legal process must be the attainment of distributive justice between the parties rather than the realization of the most accurate view of reality. The theory further suggests that the justice objective will best be served by a procedure that assigns maximum process control to the disputants while assigning decision control to a third party. It is conceivable that use of the scientific method in legal decisionmaking would result in a more accurate view of a particular empirical reality, but the information attained would be of little or no significance, while the cost of attaining it would be significant diminution in the perceived fairness of the outcome.<sup>47</sup> Therefore, application of the theory proves that the proposals to adopt an autocratic or "scientific" model for the legal process are ill-considered.

On the other hand, an argument has been made for the use of legal procedures to facilitate the attainment of truth in scientific inquiry. An example of this position is Levine's plea for the application of adversary procedures to the resolution of questions in field and clinical research in the social sciences.<sup>48</sup> Levine criticizes the scientific method for its "lack of fit" to problems in applied research. The methods of science so constrict the intelligence of the observer that they produce results of dubious validity from which it is difficult to generalize. Levine recommends that a fully adversarial method be adopted instead of or in addition to the usual scientific method.<sup>49</sup>

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*Method*, in SCIENCE OF LEGAL METHOD 1 (Editorial Comm. AALS eds. 1977); O. W. HOLMES, *Law in Science and Science in Law*, in COLLECTED LEGAL PAPERS 210 (1920); B. CARDOZO, *The Paradoxes of Legal Science*, in SELECTED WRITINGS OF BENJAMIN NATHAN CARDOZO 251 (M. Hall ed. 1947); Cohen, *Law and Scientific Method*, 6 AM. L. SCH. REV. 231 (1927); Cowan, *Decision Theory in Law, Science and Technology*, 17 RUTGERS L. REV. 499 (1963); Lavery, *Scientific Method in the Law—Its Uses and Limitations*, 36 CHI. B. REC. 303 (1955); Loevinger, *Law and Science as Rival Systems*, 8 JURIMETRICS J. 63 (1966).

47. See text accompanying note 30 *supra*.

48. Levine, *Scientific Method and the Adversary Model: Some Preliminary Thoughts*, 29 AM. PSYCH. 661 (1974). Levine acknowledges that his proposal is not yet developed in detail and is intended mainly to stimulate discussion. *Id.* at 662.

49. His central recommendation is that for each field of clinical study an independent and technically trained adversary be appointed who would have the function of "cross-examining all evidence from the point of view of developing the rebuttal to whatever evidence is gathered and introduced. . . . His objections, counterarguments, and evidence should be made a clear part of the report of any study." *Id.* at 674.

Application of our theory shows that an adversary system is no more appropriate for purely scientific decisionmaking than is the scientific method for legal decisionmaking. Disputes characterized by a high degree of cognitive conflict and very little conflict of interest are best resolved through an autocratic process. "Adversary arguments and contentions are only *incidental* to science, not *basic* as they are in law. In law, adversary arguments tend to settle differences. In science, adversary arguments send the contenders back to investigative procedures with which to prove themselves right—or wrong."<sup>50</sup> We agree and would add that Levine's critical assessment of field and clinical techniques—methodologically the weakest part of psychological research—implies a need for better science rather than for importing methods better suited to the pursuit of justice.

### B. *An Analysis of Specific Legal Procedures*

The theory may also be used to assess the advisability of specific features of current legal systems. For example, in 1938 the federal courts adopted the pretrial conference device in the form of Rule 16 of the Federal Rules of Civil Procedure.<sup>51</sup> Since that time most states have added some form of pretrial practice to their civil litigation systems. The federal rule permits the court, at its discretion, to direct the attorneys for the parties to appear before it for a conference to consider the simplification of the issues, amendments to the pleadings, admissions of fact and documents, the number of expert witnesses, reference to a master, and "such other matters as may aid in the disposition of the action." Rule 16 further provides that the court shall make an order reciting the action taken at the conference and that the order will control the subsequent course of the action. The chief academic proponent of the pretrial conference was Sunderland, who in 1937 predicted that pretrial examination of cases by judges and attorneys at informal hearings "might do much to restore the confidence of the public in litigation as a desirable method of settling disputes."<sup>52</sup> Today there is substantial agreement that the pretrial conference mechanism has not lived up to early expectations.<sup>53</sup>

The generally poor functioning of the mechanism is not surprising when it is analyzed in terms of our theory. Since the great bulk of civil litigation involves slight to moderate cognitive conflict and a high de-

50. Youtz, *Some Comments on "Scientific Method and the Adversary Model,"* 29 AM. PSYCH. 714, 715 (1974) (emphasis in original).

51. FED. R. CIV. P. 16.

52. Sunderland, *The Theory and Practice of Pretrial Procedure*, 36 MICH. L. REV. 215, 226 (1937).

53. See Probert, *A Survey of Ohio Pretrial Practices and Achievements*, 7 W. RES. L. REV. 428 (1956); Pollack, *Pretrial Conferences*, 50 F.R.D. 449 (1970).

gree of conflict of interest, civil procedure should be primarily concerned with the justice objective. The theory suggests this objective is most likely to be achieved by a procedure which allows the disputants to exercise maximum process control while assigning decision to control a third party. Adoption of rule 16 brought about a major shift of process control from the parties and their representatives to the court. The rule permits a trial judge to take a major role in defining the issues and selecting evidence to be heard in court. As a practical matter, it even permits the judge to eliminate trial by compelling settlement. Our analysis would predict that such a major shift of process control from the disputants to the judge would diminish the justice of the outcome.

On the other hand, the theory predicts success for a recent important change in the Federal Rules of Criminal Procedure. In 1975 rule 16 was amended to broaden significantly the scope of criminal discovery in the federal courts both for defendants and for the government.<sup>54</sup> The change was made against the background of a bitter policy debate between some of the most distinguished figures in American jurisprudence.<sup>55</sup> The fundamental issue is whether an increased exchange of information among the parties is likely to facilitate attainment of the objectives of the criminal process. Our analysis of this question begins by recognizing that criminal litigation primarily involves a conflict of interest. The prosecutor acts as surrogate for the public interest in seeking an outcome that will protect the public from future harm at the hands of a particular defendant and that will presumably deter future harmful conduct by others as well. The defendant's interests are opposed to the interests represented by the prosecutor because the defendant will incur a fine or loss of personal freedom if the prosecutor prevails. Disputes about facts—cognitive disputes—are nearly always subsidiary to the conflict of interest between the defendant and the prosecutor, and there is typically no future reliance on facts determined in criminal litigation. Thus, justice is the necessary objective of the process, and again the theory supports the use of procedures that tend to increase disputants' control over the process yet leave decision control in the hands of a third person or persons (here the judge or jury). The proper question to ask about the 1975 amendment of the rule is, therefore, whether its general tendency is to strengthen the combined process control of the disputants without diminishing the decision control of the decisionmaker. It seems apparent that the liberalizing change has precisely this effect. The disputants have a greater ability to develop information and to select evidence for presentation because each has a better opportunity to use evidence originally developed by

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54. Pub. L. No. 94-64, § 3 (20)-(28), 89 Stat. 374, 375 (codified as FED. R. CRIM. P. 16).

55. See Brennan, *The Criminal Prosecution: Sporting Event or Quest for Truth?*, 1963 WASH. L.Q. 279. See also 1 C. WRIGHT, FEDERAL PRACTICE AND PROCEDURE 488-500 (1969).

the opposing party. Since the change increases the process control of the disputants without affecting decision control, it is likely to serve the justice objective.

## V

### SOME COMPLEXITIES

#### *A. The Nature of "Mixed" Disputes*

In stating our theory we have relied heavily on the distinction between cognitive conflict and conflict of interest. We have also distinguished between high and low degrees of these two types of conflict. Our main argument can be summarized as follows: When the degree of conflict of interest is high and the element of cognitive conflict is low, the goal of the dispute resolution process is to produce a just solution. A procedure that leaves a high degree of process control in the hands of the disputants and assigns decision control to a third party is most likely to produce a just distribution of outcomes. On the other hand, when the degree of cognitive conflict is high and there is little or no conflict of interest, the objective is the determination of truth. A procedure that places both process and decision control in the decisionmaker is most likely to serve this goal. We have made the argument boldly and with little qualification in order to be as clear and straightforward as possible. Furthermore, we believe that in the great bulk of disputes either conflict of interest or cognitive conflict predominates, and therefore, that this dichotomous statement of our proposal will be sufficient to analyze most conflict situations. Nonetheless, the generalization implicitly acknowledges the occasional existence of more complex conflict conditions that require comment.

Figure 1 presents the distinctions in the form of a four cell table. Thus far, we have used our theoretical proposal to analyze situations located in the upper right (justice) cell and the lower left (truth) cell of the figure. We can ignore the upper left cell where little or no conflict exists. The remaining (mixed) cell represents the class of situations characterized by a high degree of both cognitive and interest conflict.

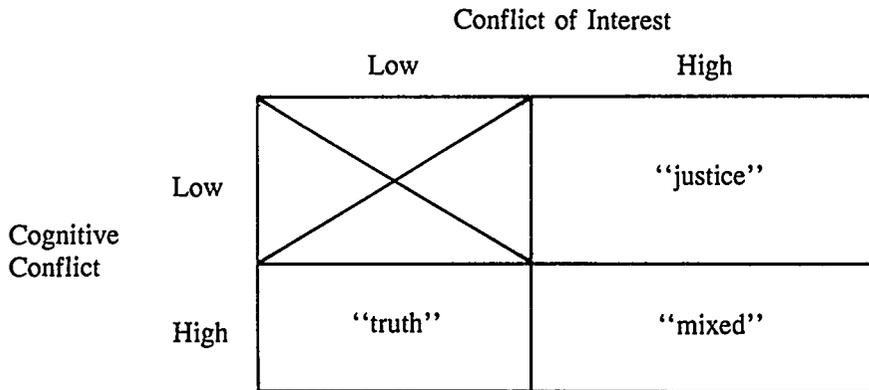


Figure 1. Two moderately simple situations and a complex one.

Perhaps there is some mixture of the two kinds of conflict in all disputes. Many, if not most, legal disputes involve questions of fact, and many scientific disputes involve conflicts of personal interests or values.<sup>56</sup> While in most situations one conflict component or the other will dominate, in the mixed disputes of the lower right cell both are strong enough that it is difficult to identify either as dominant. In these relatively few instances, both the distribution of outcomes and the resolution of cognitive disputes are important, and the facts determined by the process not only resolve the conflict of interest but also guide the future conduct of the disputants and others.

A number of these mixed disputes have their origins in the justice cell. Disputes that commence from conflicts of interest, when they are intense and protracted, can generate strong ideological positions as justifications for claims based on self-interest.<sup>57</sup> The resolution of such intense conflict of interest disputes may come to turn on a factual determination that will influence the future conduct of persons not contending over the immediate distribution of outcomes.

In recent times these disputes, although relatively few in number, have grown in public significance because of increasing technical and social complexity. An example is a dispute between owners of a riverside resort and a utility company that proposes to locate a hydroelectric generating plant on adjacent property.<sup>58</sup> The construction of the plant

56. See text accompanying notes 4-10 *supra*. Aubert distinguishes between conflict of interest and value conflict or "value dissensus," but proceeds to argue that in practice they rapidly become intertwined. Aubert, *Competition and Dissensus: Two Types of Conflict and of Conflict Resolution*, 7 J. CONFLICT RESOLUTION 26 (1963). For our present purposes, both will be treated as interest conflicts.

57. This is, of course, the view of Karl Marx. For suggestive empirical evidence, see Rabbie & Horwitz, *Arousal of Ingroup-Outgroup Bias By Chance Win or Loss*, 13 J. PERSONALITY & SOC. PSYCH. 269 (1969).

58. The example is suggested by William Tucker's account of the dispute concerning the

on the selected property will benefit the company financially but will diminish the value of the adjoining property. In opposing the construction, the landowners assert that the normal operation of this type of plant will result in massive fish kills, and the utility disputes this assertion. The outcome of the conflict of interest between the parties will turn on the resolution of the cognitive conflict about the best way to protect the marine life in the river. The facts found will certainly influence the conduct of persons living along the river and will probably influence future planning for the location and construction of hydroelectric power plants.

Similarly, disputes based initially on cognitive conflict may escalate into thoroughly mixed disputes as the parties develop counterposed interests. Complications are particularly likely when the cognitive conflict arises from an intractable difference of opinion—as when scientists working from two incompatible paradigms<sup>59</sup> disagree about the interpretation of a given set of observations—and when there is strong pressure to resolve the dispute.

A dispute that developed during the 1960's over safe levels of lead concentration in the environment provides an example.<sup>60</sup> A group of experimentally-oriented physical scientists, mainly geochemists, strongly disputed estimates by industrial toxicologists, scientists trained in a paradigm of clinical medicine. The two groups differed in their basic assumptions as well as in their measurement techniques; hence, there was no basis for reaching a common understanding. Nevertheless, policy decision awaited a resolution of the issue. The debate degenerated into attempts to discredit the competence of the rival group and to establish the unique authority of one's own group to preside over this environmental problem.<sup>61</sup>

### B. Procedural Difficulties

Resolution of these mixed disputes presents particularly difficult problems. When disputes involve an admixture of intense conflicts of interest and strongly divergent claims about matters of fact, neither an autocratic nor an unrestrainedly adversarial procedure is satisfactory.

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proposal by Consolidated Edison of New York to build a pumped-storage electric power plant at Storm King Mountain on the Hudson River. See *Environmentalism and the Leisure Class*, HARPER'S, December 1977, at 49.

59. See T. KUHN, *supra* note 6. Taking liberties with Kuhn, a paradigm may be taken to mean a conceptual and instrumental framework—an organized way of viewing part of the world—that is fully accepted by a given scientific community, discipline or subdiscipline. The paradigm provides a context for and gives meaning to the "factual" observations made within it.

60. See Robbins & Johnston, *The Role of Cognitive and Occupational Differentiation in Scientific Controversies*, 6 SOC. STUD. SCI. 349 (1976).

61. Hardly less bitter are some of the debates over radiation levels between polarized coalitions. See Mazur, *Disputes Between Experts*, 11 MINERVA 243, 258-60 (1973).

Two examples from British experience illustrate the problems with each approach.<sup>62</sup>

In the first example, the Minister of Housing and Local Government used an autocratic procedure in inquiries made under the Town and Country Planning Act of 1968.<sup>63</sup> The Minister was to decide whether to build a new town and, if so, to designate its site and certain other features. Two of the inquiries have been evaluated recently;<sup>64</sup> both involved cognitive conflict as well as conflict of interest. Determination of the necessary size of the new development depended on empirical questions involving the rate of population growth in the neighboring areas and how best to estimate it. Conflict of interest arose from the differing preferences among residents, farmers, and businessmen about aspects of the plan.

The procedure adopted for the inquiries gives the Minister a very high degree of decision control as well as substantial process control. The Minister and his staff collect information and publish a proposal. If there are objections, the Minister must hold a public inquiry. At the inquiry objecting parties may introduce evidence, but the Minister is not required to present evidence in support of the proposal. Inasmuch as the objecting parties cannot cross-examine the Minister's planning consultants, the process control of interested parties other than the Minister is significantly limited. After the inquiry, the same Minister has decision control over whether to proceed. Not surprisingly, the evaluation of these inquiries reports widespread public criticism and dissatisfaction, and one may wonder whether the procedure produces very much of either truth or justice.

The second example illustrates the difficulties with using an adversarial procedure to resolve a mixed dispute. It is derived from a report of the proceedings at a public inquiry to decide whether to permit the construction of a very large shopping center at the Brighton Marina. A university-based theoretical physicist who testified as an expert witness at the inquiry made the report.<sup>65</sup> The dispute concerned the impact of the proposed center on other shopping centers and markets in the area as well as the implications of the proposal for traffic congestion in East Sussex. The issues evoked powerful conflicts of both interest and belief

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62. Both of the examples are drawn from proceedings within the public inquiry system of the United Kingdom, a system that provides differing procedures depending on which ministry has jurisdiction and on the nature of the hearing. See R. WRAITH & G. LAMB, *PUBLIC INQUIRIES AS AN INSTRUMENT OF GOVERNMENT* (1971).

63. Town & Country Planning Act, 1968, c. 72.

64. Levin, *The Planning Inquiry Farce*, 14 *NEW SOCIETY* 17 (1969).

65. Dombey, *Experts at Public Inquiries*, 61 *THE PLANNER* 299 (1975). For replies from planning consultants criticized by Dombey, see letters by Turner and by Simpson in 61 *THE PLANNER* at 351 & 352 (1975). Dombey's view is supported by a letter from Cole, 61 *THE PLANNER* 387 (1975).

at the hearing. The report indicates that the adversarial procedure employed was unsatisfactory as a means of resolving the cognitive issues,<sup>66</sup> in part because of insufficient process control in the Inspector who presided. Moreover, according to the physicist's report, the Inspector, who was untrained in the technological questions in dispute, was not always able to evaluate technical claims. The Inspector's lack of background inevitably would make the factfinding less accurate.<sup>67</sup>

### C. A Two-Tier Solution

These two examples of the class of mixed disputes are typical. How can these intricately compounded disputes be properly resolved? Application of straightforward autocratic methods is likely to violate the concerns of justice, while the unfettered use of adversarial methods will impede the attainment of truth. Although there appears to be no ideal solution, our theory suggests that a two-stage procedure will best reconcile the two objectives in such disputes. The first stage should resolve issues of fact with the objective of determining truth; the second stage should resolve policy questions in a wholly separate procedure.<sup>68</sup>

Our proposal requires the separation of questions of fact from those of justice or policy. Many difficulties are entailed in making this separation.<sup>69</sup> Yet the distinction is clear enough in principle,<sup>70</sup> and, in psychological research, it has proved feasible to make the separation both conceptually and empirically.<sup>71</sup>

Once the separation has been made, the next step is to determine the appropriate procedure for resolving the issues of fact. Since this procedure must be capable of yielding a provisional resolution of the cognitive conflict in spite of a strong conflict of interest, it must allocate total decision control to a third party. Furthermore, since the primary

66. "The Inspector's job was to listen to both sides, not to find out the real situation." Dombey, *supra* note 65, at 301.

67. Furthermore, his inability to evaluate all of the rival claims may have reduced his decision control. See text accompanying notes 72 & 73 *infra*.

68. The policy decision, entailing questions of value and conflict of interest, would be dealt with in a separate adversarial procedure or perhaps through the political process.

69. Some might deny the possibility. See, e.g., D. MACRAE, *THE SOCIAL FUNCTION OF SOCIAL SCIENCE* (1976); Wynne, *The Rhetoric of Consensus Politics: A Critical Review of Technology Assessment*, 4 RESEARCH POL'Y 108 (1975); Nelkin, *Thoughts on the Proposed Science Court*, 18 NEWSLETTER SCI., TECH. & HUMAN VALUES 20 (1977); Robbins & Johnston, *supra* note 60.

70. And we have made it implicitly in our distinction between conflicts of interest and cognitive conflicts.

71. Particularly in the measurement of attitudes, the separation of belief from value has been clearly achieved. See, e.g., Fishbein & Raven, *The AB Scales: An Operational Definition of Belief and Attitude*, 50 HUMAN REL. 35 (1962); Rosenberg, *An Analysis of the Affective-Cognitive Consistency*, in ATTITUDE ORGANIZATION AND CHANGE 15 (C. Hovland & M. Rosenberg eds. 1960). Moreover, some basic differences between attribute judgments or perceptions of the properties of stimuli and preference judgments of the desirability or value of the stimuli have been demonstrated. See C. COOMBS, *A THEORY OF DATA* (1964).

objective of the procedure at this stage is to determine the truth, it must also allocate to the decisionmaker a degree of process control. Inevitably, the conflict of interest inherent in the relationship between the disputants remains as a latent force underlying the proceedings, even though the only explicit aim at this point is to resolve the cognitive elements of the truncated dispute. In deference to the real, if unofficial, presence of the interest conflict, a measure of process control must be retained by the disputants themselves. But the decisionmaker should excise statements of the values, preferences, and special interests of the disputants from the documents of the case and should proscribe all references to them. In general, then, the procedure suggested for this factual dispute extracted from its context of conflicting interests lies between the autocratic and the adversarial models.

According to this proposal, the decision control of the third party must be strong. If questions of science and technology are at issue, the decisionmaker should be a scientist (or a panel of scientists) who is fully capable of evaluating the particular claims in dispute.<sup>72</sup> If the cognitive conflict derives in any part from contending "paradigms,"<sup>73</sup> the decisionmaker should be able to understand and assess them, and perhaps to assist in translating each paradigm into terms that are understood by the other side. Even if the scientist (or the panel) has the authority to decide the dispute, a lack of understanding will impair effective decision control by forcing him to decide on the basis of considerations other than the scientific merit of the claims. And even though the nature of science and technology makes any such decision provisional, an uninformed decision is unnecessarily inaccurate and thus subject to immediate, and wasteful, revision.

We have suggested that the disputants should exercise less process control, and the decisionmaker more, than in an adversarial model. The disputants' process control could be reduced by requiring that the contending representatives reach agreement in advance on the rules of evidence to apply in the proceedings, including rules of relevance. The representatives should be scientists, not lawyers. Therefore, the rules of evidence would probably conform to the norms that constrain presentations at a scientific meeting. A referee might be necessary to monitor compliance with the agreed rules of procedure. This close control over the procedure would not only reduce the process control of the disputants but would also increase the process control of the decisionmaker, particularly if the referee worked closely with the decisionmaker or if both functions were performed by a single judge.

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72. Similarly, if cognitive issues in a social science field are at issue, then a social scientist should be the decisionmaker. For example, certain antitrust disputes might fit the mixed category, in which case an economist might be chosen as decisionmaker.

73. See note 59 *supra*.

The recommendation we have sketched is very similar to the recently proposed plan for a Science Court for the United States.<sup>74</sup> The proposal has stirred lively controversy. It has gained numerous adherents,<sup>75</sup> although some of them have explicit reservations.<sup>76</sup> Proponents emphasize many of the points we have made in the foregoing paragraphs. In addition, they urge that confusion among the public would be reduced if technical adversaries publicly put forth their best claims and their best challenges and responses to rival claims.<sup>77</sup> The proposals restrict the function of the Science Court to deciding factual disputes. Questions involving social values would then be left to political and policymaking procedures at the second stage of the process. Critics of the proposal worry that decisions by the court may carry so great a weight as to dictate subsequent policy decisions, thereby politicizing scientists by providing them with substantial political control, while at the same time excluding the public from participation in the processes of government.<sup>78</sup> Although we share the critics' concern about these possibilities, we are not favorably impressed with any of the alternative solutions thus far proposed, including maintaining the status quo and educating the public in the understanding of science and technology.<sup>79</sup> The analysis developed in the preceding pages suggests that the proposal for the Science Court is the most promising method for achieving the objectives of truth and just policy.<sup>80</sup>

### CONCLUSION

There is a fundamental dichotomy between the dispute resolution objectives of truth and justice. Conflict about the correct view of reality must be resolved with the objective of determining truth, while conflict

74. See generally Kantrowitz, *Controlling Technology Democratically*, 63 AM. SCIENTIST 505 (1965); Kantrowitz, *Proposal for an Institution for Scientific Judgment*, 156 SCI. 763 (1967); Task Force of the Presidential Advisory Group in Science and Technology, *The Science Court Experiment: An Interim Report*, 193 SCI. 653 (1976).

75. See Boffey, *Science Court: High Officials Back Test of Controversial Concept*, 194 SCI. 167 (1976).

76. See, e.g., Mazur, *supra* note 61.

77. On the other hand, it is just this appearance of an authoritative verdict, dispelling confusion, that concerns some of the critics of the Science Court. See, e.g., Nelkin, *supra* note 69. See also Task Force of the Presidential Advisory Group in Science and Technology, *supra* note 74.

78. See sources cited in note 69, *supra*.

79. Both Nelkin, *supra* note 69, and Wynne, *supra* note 69, recommend educational programs.

80. It should be emphasized that the Science Court and its political sequel would constitute a two-stage conflict resolution procedure. The sequence of the process reverses that described earlier in our comments on the effects of codification of rules, where consideration of questions of justice in the legislature precedes the determinations of fact in any given case. The Science Court is designed to rule provisionally on questions of truth, the results of which would then be available at the second stage to the electorate and to administrative agencies for collective decisionmaking about policies to achieve justice.

about the apportionment of outcomes is necessarily resolved with the objective of achieving justice. Our theory of procedure analyzes the likelihood of attaining either the truth or justice objective as a function of the distribution of control among the disputants and a third-party decisionmaker. An autocratic procedure which delegates both process and decision control to a disinterested third party seems most likely to produce a correct view of reality and, hence, is appropriate for the resolution of most scientific disputes. On the other hand, a system that assigns maximum process control to the disputants, but assigns decision control to a third party, is most likely to result in distributive justice. The latter hypothesis has important implications for the legal process, because the essence of the adversary system of legal decisionmaking is the distribution of maximum process control to the disputants and their attorneys, with decision control assigned either to a judge or a jury. This conception of legal procedure can be used to determine the impact of very specific procedural rules on the overall justice of the legal system. Finally, certain rare but important decisionmaking problems involve both cognitive conflict and conflict of interest. For resolving these disputes, we propose a two-staged procedure that separates questions of truth from questions of justice and employs an appropriate process for each.