Short Report

How Do Individuals Solve the Doctrinal Paradox in Collective Decisions?

An Empirical Investigation

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A seven-judge committee must decide whether to promote a candidate to a position requiring a young, trilingual person. Each judge estimates whether the candidate is young, and whether she is trilingual (see Table 1). Individual judgments on whether the candidate has the correct profile follow logically by conjunction. The candidate is young for a majority of judges (4/7) and is trilingual for a majority of judges (4/7), yet only two judges think she has the right profile—and this group-level inconsistency arises even though each individual set of judgments is consistent. How should the committee proceed? Should the judges vote on the whole conjunction (the profile) and reject the candidate, or should they vote separately on each conjunct (the criteria) and promote the candidate? This problem, an instance of the more general *doctrinal paradox*, has generated a substantial literature in law, economics, political science, philosophy, and computer science (Bovens & Rabinowicz, 2006; Brennan, 2001; Chapman, 1998; Dietrich, 2006; List, 2003, 2005; List & Pettit, 2002, 2004; Pettit, 2001). However, it has never been addressed from an empirical-behavioral perspective (although see Kameda, 1991). In this article, I report a study testing three factors that contribute to judges' preferences for voting on the whole conjunction or voting separately on each conjunct. (See List & Pettit, 2002, for other escape routes from the paradox.) The three factors are as follows:

- First, voting on the conjunction is informationally more economical than voting on the conjuncts: The former requires a single judgment from each judge; the latter requires an entire vector of judgments. Because the attractiveness of the ma-

jority rule derives partly from its simplicity (Hastie & Kameda, 2005), judges should find conjunction voting attractive because of its comparative simplicity.

- Second, in thorny situations lacking a clear majority, jurors are known to manifest a leniency bias and eschew conviction (MacCoun & Kerr, 1988). If people manifest such a bias in doctrinal-paradox situations, they will prefer the voting procedure (conjunct vs. conjunction voting) that grants the more lenient outcome (cf. List, 2006).

- Third, if the two conjuncts are known to be seldom satisfied simultaneously, judges will know they are unlikely to find someone with both characteristics, and they will be tempted to *satisfice* by selecting someone who satisfies each criterion for a majority of the judges, even though only a minority of the judges see the two criteria as satisfied simultaneously. Thus, incompatible criteria should encourage conjunct voting.

EXPERIMENT

Each of 1,092 subjects (547 women; mean age = 31.2, $SD =$ 12.6) was assigned to one group of a 2×2 between-subjects design (details about the recruiting procedure are available in Bonnefon & Villejoubert, 2006). They read a cover story in which compatibility (criteria compatible or incompatible with each other) and polarity (positive or negative outcome) were manipulated. The compatible-positive scenario read as follows (translated from French):

> The seven administrators of a company are considering whether an employee will move to a new position; the employee will have to comply with their decision. The position is much coveted. Having the profile for the position amounts to being both young and trilingual.

TABLE 1
An Example of the Doctrinal Paradox

Judge	Young?	Trilingual?	Profile?
Judge 1	Yes	No	No
Judge 2	Yes	Yes	Yes
Judge 3	No	Yes	No
Judge 4	No	No	No
Judge 5	No	Yes	No
Judge 6	Yes	No	No
Judge 7	Yes	Yes	Yes
Majority	Yes	Yes	No

Note. In this scenario, a seven-judge committee must decide whether to promote a candidate to a position requiring a young, trilingual person. The table shows each judge's estimate of whether or not the candidate is young and whether or not she is trilingual. The individual judgments on whether she has the correct profile follow logically by conjunction.

In the incompatible condition, the second criterion was "having strong experience in team management," rather than "being trilingual." In the negative-polarity condition, the position was "one nobody wants to fill," rather than "much coveted." The administrators' judgments were presented in tabular form, just as in Table 1. Subjects read that the administrators would proceed to a majority vote, but that there were two possible procedures for conducting this vote. The conjunct- and conjunction-based procedures were introduced side by side. Subjects indicated on two scales which procedure they agreed with more (from 1, *I definitely agree with the first procedure*, to 5, *I definitely agree with the second procedure*) and which procedure they found simpler (from 1, *the first procedure is much simpler*, to 5, *the second procedure is much simpler*). The first and second procedures were always conjunction voting and conjunct voting, respectively. (A manipulation check confirmed that the manipulations of compatibility and polarity were reliable, were orthogonal, and did not affect perceived simplicity.)

Compatibility, polarity, and simplicity affected subjects' preferences in the expected directions (Table 2). Subjects showed increased preference for conjunct voting when the criteria were relatively incompatible, $F(1, 1087) = 5.51$, $p_{rep} = .93$,

TABLE 2
Procedural Preferences as a Function of Polarity and Compatibility

Condition	Mean rating	Ratings of 4 and 5 (%)	n
Negative polarity			
Compatible	2.6 (1.4)	35	290
Incompatible	2.8 (1.4)	42	293
Positive polarity			
Compatible	3.0 (1.4)	50	253
Incompatible	3.1 (1.4)	52	256

Note. High ratings on the 5-point scale indicate a preference for conjunct voting.

$\eta^2 = .005$. Also, subjects in the positive-polarity condition (in which getting the job meant promotion) showed increased preference for conjunct voting, compared with subjects in the negative-polarity condition (in which getting the job meant demotion), $F(1, 1087) = 16.11$, $p_{rep} = .99$, $\eta^2 = .015$. Overall, subjects judged that conjunction voting was simpler ($M = 2.1$, $SD = 1.3$), and simplicity had a main effect on procedural preference, $F(1, 1087) = 207.33$, $p_{rep} = .99$, $\eta^2 = .16$; specifically, low simplicity ratings were associated with low ratings on the preference scale (i.e., preference for the conjunction procedure). The proportion of subjects who strictly preferred conjunct voting (i.e., a rating of 4 or 5 on the preference scale) ranged from 35% in the negative-compatible condition to 52% in the positive-incompatible condition.

SYNTHESIS

When a group makes a judgment on whether some conjunction is true, a doctrinal paradox arises when (a) each conjunct is judged as true by a majority, (b) the conjunction itself is not judged as true by a majority, and (c) each individual set of judgments is logically consistent. In such a situation, the group's preference for a voting procedure (conjunct voting vs. conjunction voting) makes a critical difference to the aggregated judgment. This experiment found that the voting method judges prefer depends on at least three motives. First, simplicity considerations favor conjunction voting. (Note that this conclusion rests on subjects' own ratings of simplicity, rather than on my arguably superficial discussion of procedural simplicity.) Second, judges prefer conjunct voting when they believe the conjuncts can seldom be satisfied simultaneously. Third, judges tend to favor the procedure that yields the more lenient outcome.

Given that the "robust beauty" of the majority rule (Hastie & Kameda, 2005) makes it so appealing for group decisions, it is critical to investigate the shadowy aspects of the majority rule, such as the doctrinal paradox. Although analytical investigations of this paradox have been intensive in recent years, empirical investigations have been nonexistent. The present study is a first step toward filling this gap, but much is left for future research. One promising line of work would be to relate polarity effects and leniency considerations to the vast psychological literature on framing effects.

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