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Forecasting Trial Outcomes: Lawyers Assign Higher Probability to Possibilities That Are Described in Greater Detail

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The study of judgment under uncertainty has revealed that people judge the probability of an event to be higher when the event is described as a disjunction of constituent events or when they judge constituent events separately. These observations have motivated the development of support theory (Y. Rottenstreich & A. Tversky, 1997; A. Tversky & D. J. Koehler, 1994), a descriptive model of judgment under uncertainty. The major predictions of support theory are that (1) the judged probabilities of complementary events sum to 1; (2) the judged probabilities of $n > 2$ *exclusive and exhaustive events generally sum to more than 1; and (3) the judged probability of an event generally increases when it is described as a disjunction of specific possibilities. We test these predictions in 6 studies of experienced attorneys who judged the likelihood of particular trial outcomes or were asked to offer advice on whether or not to accept a settlement offer. The results demonstrate that attorneys are indeed susceptible to bias in forecasting trial outcomes, consistent with support theory.*

Litigation is fraught with uncertainty. Clients depend on their lawyers to help them predict what might happen should their case proceed to trial. Lawyers' judgments of the likelihood of potential outcomes may be the most important factor underlying clients' decisions whether to proceed to trial or pursue settlement, whether or not to drop a case, and whether or not to invest more time and money in discovery. Sometimes attorneys express their forecasts in terms of numerical probabilities; other times they characterize their degree of belief using qualitative expressions, such as "we're unlikely to prevail" or "our case is very strong." Whether or not an attorney offers an explicit forecast, he/she will certainly offer advice to the client on how to proceed; this advice is necessarily based on a tacit judgment of the likelihood of

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various outcomes. Lawyers typically assume—and clients usually take for granted—that these forecasts are unbiased and consistent. To date, there has been little empirical research to determine whether this assumption is well founded.

Behavioral decision theorists have documented numerous biases and inconsistencies in judgment by laypersons and experts in a variety of contexts (see, e.g., Kahneman, Slovic, & Tversky, 1982). In particular, more detailed descriptions of an event can give rise to higher judged probabilities (e.g., Fischhoff, Slovic, & Lichtenstein, 1978), and the sum of judged probabilities of mutually exclusive events is typically higher than the judged probability of the union of those events (e.g., Teigen, 1974). These patterns have motivated the development of support theory (Rottenstreich & Tversky, 1997; Tversky & Koehler, 1994), a descriptive model of judgment under uncertainty. To date, key tenets of support theory have been confirmed in studies of sports fans (Fox, 1999), physicians (Redelmeier, Koehler, Liberman, & Tversky, 1995), and options traders (Fox, Rogers, & Tversky, 1996). Extensions to decision making are reviewed by Fox and Tversky (1998). However, there has not yet been an attempt to document similar patterns among practicing attorneys. Although there have been a few recent studies of decision biases among lawyers and a very recent study of judgmental biases among federal magistrate judges (see Guthrie, Rachlinsky, & Wistrich, 2001), we are aware of no previous investigations of biases in probability judgment of practicing attorneys.

One might argue that attorneys should be less susceptible to bias in forecasting trial outcomes than other professionals making forecasts in their respective fields. Law schools train prospective attorneys to examine cases from multiple perspectives; students must be prepared to argue all sides of a case in class discussion, in moot court events, in their writing, and on their examinations. When they begin their careers, lawyers typically work for more experienced colleagues who exhort them to analyze exhaustively each case's strengths and weaknesses. As lawyers progress through their careers and are exposed to more cases, verdicts, and statistics, their judgment presumably becomes better calibrated. The purpose of this paper is to test the major predictions of support theory against the presumption that attorneys make internally consistent judgments concerning trial outcomes.

The remainder of this paper is organized as follows. We begin with a description of the major elements of support theory. Next, we present the results of six empirical studies of experienced attorneys whom we asked to make probabilistic judgments or provide advice for real and hypothetical cases. These cases were drawn from the fields of torts, family law, and antitrust. We conclude with a discussion in which we summarize our key findings, discuss their application to the practice of law, suggest corrective procedures, and identify potential directions for future research.

THEORY

In support theory, probability is not attached to events, as it is in other models, but rather to descriptions of events, called *hypotheses*; hence, different descriptions of the same event may be assigned different probabilities. Support theory assumes that each hypothesis A has a nonnegative support value $s(A)$ corresponding to the subjective strength of the evidence an individual assigns to this hypothesis. The judged probability $P(A, \bar{A})$ that the focal hypothesis A holds rather than the complementary hypothesis $\bar{A}$ is given by

$$P(A, \bar{A}) = \frac{s(A)}{s(A) + s(\bar{A})}. \tag{1}$$

Thus, judged probability is interpreted as the support for the focal hypothesis A relative to support for the alternative hypothesis $\bar{A}$. The theory further assumes that (i) unpacking a description of an event A (e.g., homicide) into disjoint components $A_1 \vee A_2$ (e.g., A_1, homicide by an acquaintance, or A_2, homicide by a stranger), generally increases its support, and (ii) the sum of support for the component hypotheses (in this case A_1 and A_2 assessed separately) is at least as large as the support of their explicit disjunction, so that

$$s(A) \leq s(A_1 \vee A_2) \leq s(A_1) + s(A_2), \tag{2}$$

provided (A_1, A_2) is recognized as a partition of A. The rationale for Eq. (2) is that (i) unpacking may remind people of possibilities that they might have overlooked and (ii) the separate evaluation of hypotheses tends to increase their salience and enhance their support.

Three major implications of support theory are especially relevant to attorneys forecasting trial outcomes. First, Eq. (1) implies *binary complementarity*:

$$P(A, \bar{A}) + P(\bar{A}, A) = 1.$$

That is, the judged probabilities of complementary events should sum to one. For instance, assuming that a case proceeds to verdict, the judged probability of a verdict favoring the plaintiff plus the judged probability of a verdict favoring the defense should sum to one, just as it must under standard probability theory.

Second, for finer partitions, Eqs. (1) and (2) imply *subadditivity*:

$$P(A, \bar{A}) \leq P(A_1, \bar{A}_1) + P(A_2, \bar{A}_2).$$

That is, the judged probability of a hypothesis is less than or equal to the sum of judged probabilities of its components, evaluated separately. For example, the judged probability of "an award to plaintiff" should be less than or equal to the judged probability of "an award to plaintiff of less than \$100,000" plus the judged probability of "an award to plaintiff of at least \$100,000." Note that subadditivity implies that the sum of judged probabilities of $n > 2$ exhaustive events will generally be larger than one, which implies, in turn, that the probability of each event must be overestimated on average. In our example, the judged probability of "no award to plaintiff" plus the judged probability of "an award to plaintiff of less than \$100,000" plus the judged probability of "an award to plaintiff of at least \$100,000" may sum to more than one. In general, as the set of possible events is broken up into a greater number of more specific events, the total judged probability increases. This may be due in part to a natural tendency of people to evaluate each specific focal hypothesis (e.g., award to plaintiff of less than \$100,000) against its negation (e.g., something other than an award to plaintiff of less than \$100,000) rather than against the complete set of more specific alternative hypotheses (e.g., award to plaintiff of at least \$100,000; no award to plaintiff).

Third, Eqs. (1) and (2) imply *implicit subadditivity*:

$$P(A, \bar{A}) \leq P(A_1 \vee A_2, \bar{A}).$$

That is, the judged probability of hypothesis A is less than or equal to the judged probability of a more detailed description of the same event, $A_1 \vee A_2$. For instance, the judged probability of "a nonlitigated resolution" of a case should be less than or equal to the judged probability of "settlement, withdrawal, or dismissal" of that case.

EXPERIMENTS

To test the major predictions of support theory in forecasts of trial outcomes, we recruited several samples of experienced practicing attorneys. In each study we assigned participants at random to different experimental conditions and asked them to complete a brief written survey. A first set of studies was designed to test the predictions of binary complementarity and subadditivity. A second set of studies was designed to test the prediction of implicit subadditivity. A final study documents a manifestation of implicit subadditivity in advice provided by attorneys.

Subadditivity and Binary Complementarity

The additivity axiom of probability theory implies that the judged probabilities of exclusive and exhaustive events should sum to one. As we have noted, support theory likewise predicts that the judged probabilities of complementary events should sum to one (binary complementarity). In contrast to probability theory, support theory predicts that finer partitions will generally yield sums that are greater than one (subaddivity). Our first three studies test these predictions.

Study 1: Jones v. Clinton

We recruited 200 practicing attorneys (median reported experience: 17 years) at a national meeting of the American Bar Association (in November 1997). Ninety-eight percent of the attorneys reported that they knew at least "a little" about the sexual harassment allegation made by Paula Jones against President Clinton. At the time that we administered the survey, the case could have been disposed of by either (A) judicial verdict or (B) an outcome other than a judicial verdict. Furthermore, outcomes other than a judicial verdict included (B_1) settlement; (B_2) dismissal as a result of judicial action; (B_3) legislative grant of immunity to Clinton; and (B_4) withdrawal of the claim by Jones. Each attorney was randomly assigned to judge the probability of one of these events.

Table 1. Median Judged Probabilities for All Events in Study 1

Two fold partition	Probability	Five fold partition	Probability
A (judicial verdict)	.20	A (verdict)	.20
B (not verdict)	.75	B1 (settlement)	.85
		B2 (dismissal)	.25
		B3 (immunity)	.0
		B4 (withdrawal)	.19
Total	.95		1.49

Probability theory requires that $P(A) + P(B) = 1$, and that $P(A) + P(B_1) + P(B_2) + P(B_3) + P(B_4) \leq 1$ (because there are other possible outcomes, e.g., one of the litigants dies before any other terminal event occurs). Support theory also predicts that $P(A) + P(B) = 1$, but allows for $P(A) + P(B_1) + P(B_2) + P(B_3) + P(B_4) > 1$. Table 1 lists median probabilities for all events. Consistent with support theory, $P(A) + P(B) = .95$, which is not significantly different than one, $p = .30$ by Mann–Whitney test, $t(49) = 1.03$, $p = .31$, whereas $P(A) + P(B_1) + P(B_2) + P(B_3) + P(B_4) = 1.49$, which is much greater than one, $t(115) = 6.49$, $p < .0001$.[4] Moreover, note that attorneys assigned a much higher probability to "an outcome other than a judicial verdict" when the component events were evaluated by separate groups: $P(B) = .75 < 1.29 = P(B_1) + P(B_2) + P(B_3) + P(B_4)$, $t(116) = 6.96$, $p < .0001$.[5] In fact, one component (settlement, B_1) received a higher median judged probability than the more general hypothesis (outcome other than judicial verdict, B), although this tendency was not statistically significant.

Study 2: Predicting Tort Awards

Study 1 provides evidence of pronounced subadditivity using a *categorical* partition of the event space (i.e., in which the set of possible trial outcomes was parsed into different categories). Previous research has also documented subadditivity using *dimensional* partitions, in which a numerical variable is parsed into intervals. For Study 2, we recruited attorneys at an Oregon Law Institute continuing legal education program ($n = 31$) and an Oregon State Bar Conference ($n = 24$). We described to participants the details of a simple fact pattern involving an auto accident in which a driver/defendant struck a pedestrian/plaintiff. In our hypothetical the defendant admitted liability. The only remaining question concerned the amount of damages to be awarded to the plaintiff (the complete text of this hypothetical is

[4] The analyses of Studies 1–5 present t statistics that do not assume equal variance and are therefore corrected using the Welch solution by adjusting the degrees of freedom. In cases where we make simple comparisons between two groups, we supplement this analysis with a (nonparametric) Mann–Whitney test.

[5] It is worth noting that it is logically possible to observe both perfect additivity among each individual's responses and subadditivity among the median response to each item. However, such a pattern is highly implausible in the present case as it would require an enormous degree of heterogeneity of belief between attorneys in order to produce the pronounced degree of subadditivity that we observed in Studies 1–3. Moreover, such between-subject heterogeneity could not explain the implicit subadditivity observed in Studies 4–6. For further comments on the role of within- and between-subject error in the measurement of subadditivity, see Bearden, Wallsten and Fox (2001).

Table 2. Median Judged Probabilities for All Events in Study 2

Award	Probability
\$0–25 K	.70
25–50 K	.73
50–100 K	.30
>100 K	.05
Total	1.78

provided in Appendix A). We assigned participants at random to groups that each judged the probability of one of following ranges: (1) \$0–25,000; (2) \$25,000–50,000; (3) \$50,000–100,000; or (4) over \$100,000. According to probability theory the numbers assigned to these events should sum to approximately one,[6] whereas support theory predicts that these probabilities will generally sum to more than one. Consistent with this prediction, median judged probabilities, reported in Table 2, sum to $1.78 \gg 1$, $t(46) = 4.28$, $p < .0001$.

Study 3: Divorcing Parents

Studies 1 and 2 are consistent with the prediction of support theory that the sum of probabilities for $n > 2$ possible events is generally greater than one, which implies that the probabilities of more specific scenarios are overestimated, on average. Recall that support theory also predicts that the probability assigned to an uncertain event will be less than or equal to the sum of probabilities assigned to constituent events. Study 3 tests this hypothesis by using a *product* partition in which a target event is elaborated by adding the conjunction with a second event that may or may not occur; that is, A is partitioned into $(A \wedge B, A \wedge \bar{B})$.

We recruited 62 attorneys attending a family law conference at Willamette University in Salem, Oregon. Seventy-six percent reported at least 3 years of family practice experience. We presented a hypothetical scenario in which divorcing parents disputed custody of their children. In addition, the parents agreed that one parent would keep the family home, but they disputed which one of them should receive it (the complete text of this hypothetical is provided in Appendix B). Standard probability theory requires that the probability that the father is awarded custody (C) equals the sum of (i) the probability that the father is awarded both custody of the children and the family home $(C \wedge H)$ and (ii) the probability that the father is awarded custody of the children but the *mother* is awarded the family home $(C \wedge \bar{H})$. Support theory, in contrast, predicts $P(C) \leq P(C \wedge H) + P(C \wedge \bar{H})$. Consistent with the support theory prediction, the median estimate of the probability that the father would be awarded custody of the children, $P(C) = .20$ was lower than the sum of median judged probabilities of groups that judged the constituent events, $P(C \wedge H) = .20$, $P(C \wedge \bar{H}) = .10$. This difference is statistically significant, $t(46) = 2.01$, $p = .05$.

[6]Because there is a \$1 overlap between categories 1 and 2 and categories 2 and 3, it is possible that probabilities could sum to slightly more than one.

Implicit Subadditivity

Studies 1–3 demonstrate pronounced subadditivity among lawyers' probability assessments of trial outcomes. In each instance, the judged probability of a particular trial outcome is less than the sum of probabilities of constituent outcomes that were judged by separate groups of attorneys. Hence, separate evaluation of more specific possible trial outcomes yields higher total judged probability.

Studies 4 and 5 test the prediction of *implicit subadditivity*: unpacking the description of an event into a more detailed description of disjoint components will generally yield a higher judged probability. A pilot demonstration of this phenomenon can be seen in the data of Study 1, *Jones v. Clinton*. Recall that we asked some participants ($n = 26$) to judge the probability of the event "the case will *not* be decided by a judicial verdict" (hypothesis B). This event could also be described in greater detail as "settle out of court OR be dismissed due to judicial action OR Clinton will be given a legislative grant of immunity OR Jones will withdraw before the case is settled OR the case will never reach a verdict for some other reason (e.g., Jones or Clinton dies)" (hypothesis $B_1 \vee B_2 \vee B_3 \vee B_4 \vee B_5$). We asked a separate group of participants drawn at random from the same sample ($n = 21$) to judge the probability of this more detailed description of the same event. Consistent with support theory, lawyers who judged the probability of hypothesis B reported a median judged probability of .75 (see Table 1), whereas lawyers who judged the probability of hypothesis $B_1 \vee B_2 \vee B_3 \vee B_4 \vee B_5$ reported a median probability of .80. However, this difference did not reach statistical significance ($p > .10$). In order to provide stronger evidence for implicit subadditivity among lawyers we ran two additional studies.

Study 4: U.S. v. Microsoft

We recruited a sample of California attorneys with varied civil practices, who attended a training session at Stanford Law School ($N = 97$), and asked them to consider the antitrust case *U.S. v. Microsoft*. At the time of the survey (September 2000), Federal Judge Thomas Penfield Jackson had ruled that Microsoft be split into two entities. Microsoft indicated an intention to appeal; however, it was an open question whether the case would go to the Federal Court of Appeals or directly to the U.S. Supreme Court (the complete text of the item that we put to participants is provided in Appendix C). Ninety-five percent of respondents rated themselves at least "somewhat knowledgeable" about the case. Approximately half ($n = 50$) were asked to judge the probability that the case would "go directly to the Supreme Court." The remaining attorneys ($n = 47$) were asked to judge the probability that the case would "go directly to the Supreme Court and be affirmed, reversed, or modified." Obviously, standard probability theory requires that the judged probability of the latter hypothesis be the same as the judged probability of the former hypothesis because the latter hypothesis merely elaborates the former (i.e., the hypotheses are coextensional). Nevertheless, consistent with support theory, the elaborated version received a higher median judged probability (.40) than did the unelaborated version (.33), $t(93) = 2.04$, $p < .05$; $p = .07$ by Mann–Whitney.

Study 5: Custody Dispute

In Study 5 we used the same participants recruited for Study 3. We asked participants to assess probabilities of outcomes for "a randomly-selected marital dissolution case in Oregon involving two minor children (one boy age 16 and one girl age 5)" and told participants to assume that the case does not settle. Note that in contested custody hearings in Oregon, a judge may not make an award of joint custody. Therefore, the only plausible custody awards in our hypothetical are father custody, mother custody, or split custody (i.e., each parent gets custody of one child).[7] A first group ($n = 19$) was asked to estimate the probability that the judge will make a custody award "*other than* sole custody to the mother" (A). The median response was .25. A second group ($n = 18$) was asked to estimate the probability that the judge will order "split custody or give sole custody to the father" ($A_1 \vee A_2$). Consistent with support theory, the median judged probability was higher (.33) although the difference was not statistically significant. Finally, a third group ($n = 21$) was asked to separately evaluate *both* the probabilities of split custody and father custody ($A_1 + A_2$). The median sum of these judgments was .60, markedly higher than the median judged probability reported by the first group, $t(33) = 2.36$, $p < .05$; $p = .01$ by Mann–Whitney.[8]

Advice Provided by Attorneys

Studies 4 and 5 provide evidence that lawyers judge the probability of an event to be higher when it is unpacked into an explicit disjunction (or separate evaluation) of constituent events. Hence, the way in which a particular question (or set of questions) is posed to an attorney can substantially influence the judged probability provided by counsel. Judged probabilities are important because they serve as a currency of communication between lawyers and their clients. Hence, bias in judged probability may affect important decisions by litigants (e.g., whether or not to accept a settlement offer). We have further argued that these assessments are important because lawyers tacitly rely on them when providing advice to clients. The purpose of Study 6 is to document effects of unpacking on *decisions* recommended by attorneys.

Study 6: Advising Whether or Not to Settle

We recruited tort lawyers attending an American Bar Association session on tort and insurance practice ($n = 41$), and general practitioners attending a continuing legal education program in California ($n = 97$). We described a simple tort fact

[7] In theory other arrangements could be ordered. For example, the children could be wards of the state, or placed in the custody of a more distant relative. However, as a practical matter such awards are extremely rare and only occur after a finding that both parents are unfit.

[8] The increase in judged probability when a particular attorney consecutively evaluates both component hypotheses is not, strictly speaking, a demonstration of implicit subadditivity. Instead, it provides a rather conservative demonstration of generic subadditivity because (1) the second item to be judged (e.g., sole custody) serves to explicitly specify an alternative hypothesis when the respondent evaluates the first hypothesis (e.g., father custody) and (2) the constraint that probabilities of exclusive and exhaustive events must sum to one becomes more salient when multiple hypotheses are judged. However, this demonstration does extend the between-subject patterns observed in Studies 1–3 to a within-subject elicitation mode.

pattern in which a patron of a restaurant was injured by a foreign object in a slice of pie (the complete text is provided in Appendix D). The patron was suing the restaurant in civil court for $50,000. The hypothetical described several problems related to the plaintiff's lawyer's ability to prove her case. Participants were placed in the role of senior colleague to the plaintiff's lawyer. We asked all respondents to advise the plaintiff's lawyer whether she should recommend that her client accept or reject a settlement offer of $14,500. For one group of participants ($n = 66$), the problems of proof were described as problems with "liability." For the other group ($n = 72$), problems of proof were described as problems with "duty, breach, or causation." We assume that all lawyers understand that tort liability consists of duty, breach, and causation. In fact, this is among the most basic concepts taught in all U.S. law schools to all first-year law students.

Results demonstrate a strong effect of unpacking on lawyers' advice. If the junior colleague was concerned with meeting the standard on "liability," roughly half the participants (52%) recommended accepting the settlement offer. However, if she was concerned with meeting the standard on "duty, breach, or causation," a pronounced majority of participants (74%) recommended accepting the settlement offer. This difference is highly significant, $\chi^2(1) = 7.22$, $p < .01$. Presumably the second experimental condition yielded a stronger preference to settle because it made the constituents of liability more salient and therefore the possibility of losing at trial seem more likely.

DISCUSSION

The studies presented in this paper provide strong evidence that lawyers are susceptible to bias in judging the likelihood of potential trial outcomes. First, we have shown that the judged probability of a particular outcome increases when it is unpacked into more specific scenarios that are evaluated independently by different groups of attorneys. Study 1 demonstrated this pattern by using a *categorical* partition in which a particular outcome (dispute not decided by verdict) was parsed into qualitatively distinct components (case settles, case is dismissed, case is dropped, etc.). Study 2 replicated this finding by using a *dimensional* partition in which an outcome (award to plaintiff) was parsed into components along a quantitative continuum (award to plaintiff less than $25,000, $25,000–50,000, $50,000–100,000, over $100,000). Study 3 extended these findings by using a *product* partition in which an outcome (custody to father) was parsed into elaborated scenarios using a conjunction with another event (custody to father and house to father, custody to father and house to mother). Second, we have demonstrated that a single hypothesis is judged to be more likely when it is described as an explicit disjunction of component hypotheses, or when these components are judged sequentially by the same individual. In Study 4 we provided evidence that unpacking an event (case goes directly to Supreme court) into a more detailed description (case goes directly to Supreme court and is affirmed, modified, or reversed) yields higher judged probabilities. In Study 5 we replicated this tendency by unpacking a possible outcome of a custody case (a decision other than sole custody to the mother) into an explicit disjunction of component hypotheses (father custody or split custody), and we found an even stronger effect when each component hypothesis was evaluated consecutively by the same attorney. Finally, we demonstrated that unpacking effects can influence advice offered by attorneys. In Study 6 we showed that lawyers are more likely to recommend accepting a settlement offer when a specific concern (I may fail to prove the standard of liability) is unpacked into a more detailed description of the same concern (I may fail to prove the standard of duty, breach, or causation).

A lawyer's prediction of the outcome of a trial plays a critical role in many important decisions facing a litigant. The higher the judged probability of a favorable outcome, the more reluctant the attorney will be to recommend compromise. As a result, when attorneys provide forecasts based on a more detailed consideration of ways in which their client might *prevail*, clients may be more inclined to reject settlement offers that are higher than the expected value of trial. Conversely, when attorneys provide forecasts based on a more detailed consideration of ways in which their client might *lose*, clients may be more inclined to accept settlement offers that are inferior to the expected value of trial. To the extent that the specificity of clients' queries influence the detail with which attorneys unpack particular trial outcomes, this spurious factor can affect attorneys' judged probabilities and the advice the lawyer gives to the client about settlement and litigation.

Litigators are not the only participants in the legal system whose judgment may be distorted by unpacking effects. Neutral evaluators, judges presiding over settlement conferences, mediators, and arbitrators usually make implicit or explicit assessments of the likelihood of potential trial outcomes. Thus, a neutral hoping to produce settlement could exploit subadditivity by selectively unpacking possible unfavorable outcomes in private discussions with each party. Such a technique could potentially increase both sides' perception of an unfavorable outcome and therefore increase their willingness to settle. Similarly, jurors might be affected by the way in which arguments are presented by attorneys at trial. To illustrate, consider a lawsuit in which a landlord is accused of discriminating against a potential tenant because of her race. At trial, the landlord claims that he never received a rental application from the plaintiff. The landlord's lawyer argues in closing that the application was "lost in the mail." However, jurors might ascribe a higher likelihood to the event "lost in the mail," and therefore find this assertion more credible, if it were unpacked into a disjunction of constituent scenarios such as "the letter could have been improperly addressed, there might not have been enough postage, it might have been accidentally shredded by or stuck behind a sorting machine, it may have been dropped by a letter carrier, or it could have been lost in the mail for some other reason."

If an attorney wishes to expunge the bias of subadditivity from his or her judgment, mere awareness of this phenomenon is probably not sufficient. Arkes (1991) reviewed studies suggesting that automatic, "association based" errors of judgment are not typically mitigated by simply warning people against the potential bias. However, he observed that several researchers have successfully mitigated association-based errors by instructing people (or merely cueing them) to perform specific compensating tasks. We recommend that attorneys take the following steps to compensate for potential bias when forecasting trial outcomes. First, our investigation of implicit subadditivity (Studies 4–6) showed that attorneys are influenced by the particular level of detail with which the event in question is described. We suggest that attorneys consider multiple formulations of both the target event and its complement at various levels of specificity before responding. Second, our investigation of generic subadditivity (Studies 1–3) showed that attorneys overestimate, on average, the likelihood of each specific scenario considered because they do not give adequate consideration to unspecified alternatives. Typically, clients are most concerned with extreme potential outcomes (e.g., a decisive victory or a major loss) or very specific scenarios (e.g., "I will be awarded custody of the children but lose the house and receive minimal child support"). Attorneys should therefore make an effort to consider explicitly a more complete array of possible scenarios. We recommend that lawyers assess the probabilities of each of these exhaustive events separately, then adjust their values simultaneously so that the probabilities sum to 100%. Of course, in most cases a single, canonical partition of the event space does not exist. For instance, there is no obvious, "correct" set of ranges in which to parse the possible dollar amounts of a civil award. The best an attorney can do, it would seem, is make a concerted effort to be "evenhanded" when articulating the set of potential outcomes to be judged so that the consideration of events is as symmetric as possible.

Naturally, attorneys and their clients are most concerned with the accuracy (i.e., calibration) of likelihood judgment. And it is easy to see that a necessary condition for overall accuracy is internal consistency (i.e., additivity). However, a more direct approach for improving the accuracy of forecasts is to research base rates for the relevant topical area and jurisdiction, where available, and then make appropriate adjustments for distinguishing features of the case at hand. This technique may be especially useful for areas of law characterized by a large number of relatively small and comparable cases. For example, in Multnomah County (Portland, OR), information is available on-line concerning jury verdicts of auto accident cases, including the average award for particular types of cases and the number of cases that resulted in plaintiff verdicts and defense verdicts.[9]

A number of psychological factors may conspire against the best intentions of lawyers to make rational judgments and decisions on behalf of their clients when litigating or negotiating settlement (see, e.g., Birke & Fox, 1999). The present paper has invoked a static, cognitive perspective on forecasts of trial outcomes by attorneys. Future research might build on this work by examining the extent to which attorneys are susceptible to motivational biases that have been previously documented in lay populations. For instance, lawyers may overestimate how strong their clients' cases will appear to neutral third parties (cf. Loewenstein, Isaacharoff, Camerer, & Babcock, 1993) and overestimate their ability to secure verdicts that are favorable to their clients (cf. Taylor & Brown, 1988). Other future work might examine the dynamic process by which new evidence is evaluated by attorneys over the course of litigation. For instance, evidence obtained in discovery might be assimilated by lawyers in a biased manner that affords greater credence to facts that support their

[9]As of the present writing, such information was available at http://www.osbadr.homestead.com/JuryVerdictStats.html.

clients' cases (see Lord, Ross, & Lepper, 1979). Clearly, there are many interesting avenues for future work.

APPENDIX A: INSTRUCTIONS FOR STUDY 2

Plaintiff was a pedestrian who was hit in a crosswalk by defendant driving his car. Defendant has admitted to liability, and the only question remaining is the amount of damages. Plaintiff and defendant have agreed to try the issue of damages before a judge in Multnomah County.

You will be asked to consider the likelihood of damages falling within a specified range. The only information available to you is as follows:

The facts are simple. Plaintiff was walking across the street in downtown Portland when the defendant struck him. Plaintiff was walking in a marked pedestrian walkway, and defendant was going within 5 miles of the speed limit. Defendant claims that the accident was caused because the sun was in his eyes. There is no evidence of any alcohol or drug use on the part of the defendant. Defendant has one drunk driving violation on his driving record.

Plaintiff is 29 years old, male, and in good health. He suffered a hairline fracture to a bone in his wrist, and many scratches and scrapes, but no serious long-term injuries. At the time of the accident, plaintiff worked in construction, as a finish carpenter, earning an average of $28 per hour, or about $1150 per week. He was fully employed when he was hit. He says he will be unable to work for at least 10 weeks, and more likely 16 weeks. His medical bills to date have been $8,500, and by the time all the physical therapy is done, the cost is estimated to be a total of $15,000.

Defendant alleges that plaintiff could return to work in four weeks, and that the rehabilitation that plaintiff has arranged is not related to the accident, that there are back massages and similar treatments that are more for pleasure than necessity. Plaintiff disputes these allegations.

Plaintiff is unmarried with no children.

Both parties are covered by insurance. Defendant's policy has a $300,000 limit.

Plaintiff is represented by counsel who has taken the case on a contingency fee.

Please give your best estimate of the probability (reflected by a number between 0 and 100) that a judge in Multnomah County would award damages somewhere in the following range:

(Group 1) less than $25,000
(Group 2) $25,000–50,000
(Group 3) $50,000–100,000
(Group 4) over $100,000

APPENDIX B: INSTRUCTIONS FOR STUDY 3

Harold and Winnie are getting divorced. They have two children, ages 9 & 11. The total pool of marital assets is approximately $2 million, including a $400,000 home. Each parent wants sole custody of the children. They have agreed not to sell the home. Harold is a software engineer and Winnie is an interior designer. His office is in downtown Portland and her office is in the family home. Both parents have expressed a desire to keep the children in their same school.

Assume that the couple cannot agree to a property division or a custody and visitation arrangement, and that these matters will be decided by a judge.

What is your best estimate of the probability that . . .

(Group 1) Harold will get custody of the children?
(Group 2) Harold will get custody of the children *and* be awarded the family home in the property division?
(Group 3) Harold will get custody of the children *and* that Winnie will be awarded the family home in the property division?

APPENDIX C: INSTRUCTIONS FOR STUDY 4

In the case of United States v. Microsoft, Judge Jackson has ruled that Microsoft must split into two entities. Microsoft has indicated that it intends to appeal the ruling. The normal avenue would be for the appeal to be heard by the Court of Appeals. This court has overruled Judge Jackson in previous litigation between the United States and Microsoft.

However, the Department of Justice requested that Judge Jackson certify the case for direct review from the United States Supreme Court. This is a position that Judge Jackson has supported and that Microsoft will oppose.

The Supreme Court has yet to decide whether it will take the case directly or deny the request and send the case to the Court of Appeals.

What is your estimate of the probability that the case will . . .

(Group 1) go directly to the Supreme Court
(Group 2) go directly to the Supreme Court, and that the Supreme Court will affirm, reverse, or modify Judge Jackson's ruling?

APPENDIX D: INSTRUCTIONS FOR STUDY 6

LOSING ON [LIABILITY/DUTY, BREACH OR CAUSATION]

Assume that you are a senior partner in a small law firm specializing in personal injury cases, and that a young associate is asking for your advice. She tells you the following:

"I'm handling a personal injury case and I am worried that I might lose at trial on [liability/duty, breach or causation]. Here are the facts.

Our client injured her tooth in a restaurant. She went to a place called Pies 'R' Us. She ordered a piece of pecan pie, and when she bit into it, she broke two teeth on a cherry pit.

The law says that a plaintiff who bites into a cherry pie and breaks her tooth on a cherry pit can't recover, and even though this restaurant specializes in cherry pies, this was a pecan pie, not a cherry pie, and the law is unclear.

We don't have a lot of evidence showing how well the restaurant did its job keeping contaminants out of the pie. The owner passed away and they are out of business now, and we are going after the estate, represented by an insurance company. The restaurant apparently had a pretty great record for safety and health issues.

As if we didn't have enough problems, our plaintiff had a dental checkup the week before the incident, and the x-ray records indicate that the teeth that broke were showing signs of cracking long before the cherry pit came along.

Our client is a singer, and this tooth problem cost her a lucrative job. There's no question that it's a policy limits case, and the policy limit is $50,000.

The insurance company has offered the client $14,500 in a final "take-it-or-leave-it" offer. If I can't meet the standard on [liability/duty, breach or causation] the case is worth nothing. Should I encourage her to accept the offer?

How would you respond? (Please circle one)

YES NO

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