The More You Ask for, the More You Get: Anchoring in Personal Injury Verdicts

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SUMMARY
The 'anchoring and adjustment' bias was demonstrated in a personal injury case using mock jurors. In Experiment 1, the ad damnum, or requested compensation, was manipulated across participants. In Experiment 2, anchors were operationalized as the strength of the legal evidence. Both monetary and causal anchors systematically influenced judgments of the probability that the defendant caused the plaintiff's injuries, compensation awarded, and perceptions of the litigants. These results indicate that anchoring occurs in legal applications, and that plaintiffs would do well to request large compensation awards. In addition, anchors expressed on one scale affected judgments expressed on another scale. This cross-modality anchoring stands in contrast to previous studies. Finally, these anchoring effects are unlikely to be explained by either demand effects or perceived relevance of the anchor.

INTRODUCTION
'Anchoring and adjustment' is a bias in which individuals' numerical judgments are inordinately influenced by an arbitrary or irrelevant number (Kahneman and Tversky, 1974). In typical demonstrations of anchoring, subjects are asked to make a numerical judgment after generating, or being provided with, an initial estimate. For example, they might be asked to estimate an item's worth after the experimenter provides a random starting price. Subjects' final judgments tend to be positively correlated with the random starting point.

The anchoring bias has been demonstrated in a number of judgment tasks such as preference judgments (Carlson, 1990; Chapman and Johnson, 1994, 1996; Johnson and Schkade, 1989; Schkade and Johnson, 1989), judgments of self efficacy (Cervone

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and Peake, 1986), judgments of spousal preferences (Davis, Hoch and Ragsdale, 1986), answers to factual questions (Kahneman and Tversky, 1974; Russo and Shoemaker, 1989, p. 90), and predicting political events (Chapman and Johnson, 1996). In all of these studies, higher starting points led to higher final answers.

Many of the anchoring studies cited above involve somewhat artificial laboratory tasks. Consequently, one might argue that subjects attend to anchors because of demand effects; that is, the mere fact that the experimenter presents the anchor may indicate that it is relevant (Grice, 1975). This explanation is less plausible in realistic tasks where subjects probably view themselves as performing a natural task rather than following experimenters' instructions.

For example, Northcraft and Neale (1987) asked expert and novice real estate agents to tour and evaluate a house. The list price of the house was one of many pieces of information presented to subjects during the tour. Although subjects stated that the list price should be irrelevant to buying-price judgments, both groups were nonetheless influenced by list price anchors. It is of interest that the list price influenced judgment even though it was not presented as an initial estimate, as the anchors were in Kahneman and Tversky's (1974) original demonstration. That is, subjects were not explicitly prompted to compare their answer to the anchor. Instead, Northcraft and Neale's (1987) anchors were embedded within a long series of pieces of information. This procedure reduced demand effects, because the experimenter did not direct the participants' attention to the anchor.

Caverni and Pris (1990) provided another demonstration of anchoring in a naturalistic task. They found that in grading actual student papers, secondary school teachers were influenced by the past record of the students, even though the past record should be independent of the current grading task.

These more realistic anchoring demonstrations are less subject to demand effects but are subject to an alternative criticism: in both studies, the anchor could be interpreted as relevant information. Home owners presumably do not select asking prices randomly; rather, asking prices are likely related to the actual value of the home. Similarly, students who have done well in the past are likely to do well on the current assignment. Attending to relevant, predictive information does not constitute an anchoring bias. Thus, although anchoring has been demonstrated in numerous studies, demonstrations where the anchor is both obviously irrelevant and also free from demand effects are rare.

**Response mode effects on anchoring**

Anchoring effects have traditionally been demonstrated by having subjects make judgments in the same modality (or on the same scale) as the anchor. When the anchor and response judgment are not expressed in compatible modes, anchoring typically does not occur. Markovsky (1988) examined both anchoring and contrast effects in judgments of justice. Anchoring (or assimilation) effects occurred when the anchor and the response were on the same scale. For example, in one study, subjects had to decide on an appropriate monetary reward for a witness who had come forward to testify about a crime. Subjects exposed to large monetary anchors suggested higher rewards than those exposed to smaller amounts of money. Conversely, in another of Markovsky's experiments, contrast effects occurred when the anchor and response were on different scales. In this experiment, subjects
estimated the fair wage for a worker after hearing about another worker who was more or less qualified than the target worker. The anchors were levels of qualification, but the responses were monetary wages. Subjects assigned a higher wage if the previous worker had been less qualified than if she or he had been more qualified. In other words, the target worker was paid more if she or he was well qualified in comparison to the previous worker. Thus, judgments were biased toward the anchor only when that anchor was on the same scale as potential responses.

Chapman and Johnson (1994) also found that anchors affected responses only when the two were presented on compatible scales. Subjects gave preference judgments for consumer items after first considering an anchor. The anchors and responses were expressed either as amounts of money or as years of life expectancy. Monetary anchors affected preference judgments expressed in terms of money but not judgments expressed in terms of life expectancy. Similarly, life expectancy anchors affected longevity judgments but not monetary judgments. Thus, anchoring occurred only if the anchor and preference judgment were expressed on the same scale. Incompatible anchors and response modes resulted in no anchoring bias.

Juror decision making

An examination of anchoring in juror decision making would address both the application and the theory of the anchoring bias. Juror decisions are an important real world domain where anchors may influence judgment. In addition, this domain allows us to examine anchors that are both relatively free from demand effects and legally irrelevant (although jurors might perceive them as relevant, an issue we shall consider). Juror decisions also allow further investigation of the effect of anchors on judgments when the two are expressed on different scales. To address these issues, the present experiment explores anchoring in judgments made by mock jurors.

Despite their many differences, criminal and civil trials are similar in that they both consist of a fact-finding and a penalty phase. The penalty phase is only entered if the fact-finding phase has established the defendant’s guilt (in criminal cases) or liability (in civil cases) to a satisfactory degree of certainty, or standard of proof. One potential anchor arises during the penalty phase, when both sides propose what they feel is an appropriate penalty, and the judge or jury determines what the specific penalty will be. In criminal cases, the judgment scale is usually either time (prison sentence and/or probation) or money (a fine), while in civil cases, the scale is almost always monetary (damages).

As jurors have to consider a great deal of information in making these judgments, they are likely to rely on cognitive heuristics (Arkes, 1989; Saks and Kidd, 1980), as people commonly do in performing complex cognitive tasks (Bodenhausen and Lichtenstein, 1987). These heuristics often result in systematic biases, such as anchoring (Kahneman and Tversky, 1974).

Anchoring effects could occur in both civil and criminal trials. Ebbesen and Konečni (1981) have demonstrated that judges are susceptible to anchoring effects in criminal sentencing decisions. In making their decisions, judges are heavily influenced by the probation officer’s sentence recommendation. Although the probation officer’s recommendation incorporates much relevant information, such as ties to the community and severity of the offense, it nonetheless provides a starting point from which judges adjust to reach their judgments (Ebbesen and Konečni,
1981). In civil cases, especially those involving personal injury, the initial amount used in determining damage awards is typically provided by the plaintiff, who requests a specific amount in damages, the _ad damnum_. This requested compensation amount may act as an anchor and be overly influential in jurors' judgments. Because jurors are more often involved in determining civil penalties than criminal penalties, and because the _ad damnum_ is often based on fewer objective criteria than is the probation officer's criminal sentencing recommendation, the present experiment focuses on anchoring in personal injury cases.

One likely intuition that plaintiffs (and their attorneys) may have is that 'the more you ask for, the more you'll get'. According to Broder (1959), jurors report using the _ad damnum_ as a jumping-off place. In support of this claim, Raitz, Greene, Goodman, and Loftus (1990) found that nearly half of their juror subjects selected a damage award that exactly matched the amount requested. Similarly, Zuehle (1982, cited in Raitz et al., 1990) gave jurors in a simulated personal injury case damage requests of $10,000, $75,000 or $150,000. The mean awards for these three conditions were $18,000, $62,800 and $101,400. One-half of all juries awarded damages that matched the _ad damnum_ exactly. Thus, damage awards were systematically affected by damage requests.

These studies demonstrate that juror decision making is influenced by monetary anchors. Because requested damages are a natural part of personal injury cases, it is unlikely that subjects attended to anchors merely because of a demand effect. Nevertheless, subjects may have viewed the _ad damnum_ as informative. Plaintiffs presumably do not request an arbitrary compensation award, but instead request one that is in line with the injury sustained. Plaintiffs sometimes present testimony on objective costs such as lost income or medical expenses; however, the _ad damnum_ may also indicate the extent of other, less objective costs, such as pain and suffering. One extension of previous work would be to demonstrate an effect on juror judgments of truly irrelevant anchors, where the anchor does not have its effect because it is a perceived indicator of the extent of the plaintiff's injury. A second extension would be an examination of cross-modality anchoring effects. In the studies by Raitz et al. and Zuehle, monetary anchors influenced monetary damages awarded. Are the effects of monetary anchors limited to monetary judgments, or might they also influence judgments in other response modes, specifically, liability judgments? These two extensions are addressed in Experiment 1.

Experiment 1 examined the effect of anchors on mock jurors' compensation awards, as well as on two additional judgments, liability judgments and perceptions of the litigants. Plaintiffs requesting exorbitant amounts might be perceived as greedy and make an unfavorable impression, while those who ask for unduly low amounts might arouse suspicion about their case's legitimacy. Such sentiments toward the litigants have been found to influence how jurors evaluate the evidence and reach verdicts in both actual (Kalven and Zeisel, 1966) and simulated trials (e.g., Bornstein, 1994). Thus, any effect of anchors on monetary awards could be offset by an effect on liability judgments. Plaintiffs who ask for relatively large amounts might receive more if the defendant is first found liable, but they could be less likely to receive a favorable liability judgment in the first place; that is, plaintiffs who ask for an unusually high amount may be unlikely to win the case, and thus may receive no compensation. Anchors may affect liability judgments and compensation awards in a different fashion.
If plaintiffs wish to maximize their expected compensation award, they need to consider both the probability of winning and the amount of damages if they do win (Lempert and Sanders, 1986, Chapter 6). Thus, the optimal strategy in selecting an *ad damnum* (anchor) would be to maximize the expected value of the compensation award. If high requests decrease the probability of winning the case, then the highest expected award may be achieved with a moderate request.

Jurors might perceive a monetary anchor as relevant to the determination of compensatory damages because plaintiffs who have suffered more are likely to request more. In contrast, the *ad damnum* is irrelevant in determining whether the defendant is liable. Liability is determined purely by evidence on whether or not the defendant caused the plaintiff’s injuries, not on the extent of those injuries. Therefore, an effect of monetary anchors on liability judgments would comprise an effect of truly irrelevant anchors. In addition, it would also represent a demonstration of cross-modality anchoring. Experiment 1 tests the hypothesis that monetary anchors will affect not only monetary compensation judgments, but also liability judgments and perceptions of the plaintiff and defendant.

Experiment 2 extends our exploration of cross-modality anchoring. Whereas in Experiment 1 we asked whether monetary anchors would affect causality judgments, Experiment 2 explored whether causal evidence anchors would affect monetary compensation judgments. We constructed causal anchors by manipulating the strength of the evidence presented at trial. We assessed whether the strength of the causal evidence would affect monetary compensation judgments as well as liability judgments.

In both experiments, participants read a case summary that contained a description of the evidence presented at trial and the requested award. They then decided on liability, awarded compensation (if the defendant was first found liable), and rated their perceptions of the litigants.

**EXPERIMENT 1**

**Method**

**Subjects**

Eighty undergraduates at the University of Illinois at Chicago participated for class credit.

**Materials and procedure**

Participants read a one-page description of a personal-injury suit (modified from Bornstein & Rajki, 1994) in which the plaintiff, a young married woman named Kathy, sued her health-maintenance organization (HMO), claiming that the birth-control pill they prescribed caused her to develop ovarian cancer. The crucial evidence at trial was expert scientific testimony about whether or not birth-control pills are capable of causing ovarian cancer. The complete case summary is contained in the Appendix.

The extent and nature of the plaintiff’s injury, as well as the evidence, were the same for all conditions. The only difference among the conditions was the amount of compensation requested by the plaintiff. Participants were randomly assigned to one of four anchor conditions: $100, $20,000, $5 million, and $1 billion. These anchor values
were selected because they covered a range from implausibly low to implausibly high. (Previous pilot work with less extreme anchors revealed an anchoring effect on compensation judgments, but failed to show an anchoring effect on causality judgments). The log of anchor value increased approximately linearly across the four values, and the geometric mean anchor was approximately $300,000 (in a previous study where the requested compensation was unspecified, the average amount awarded in the case was $325,000; Bornstein, 1991). The *ad damnum* was accompanied by a statement that the requested amount was much less, a little less, a little more, or much more than the average amount requested by plaintiffs in these sorts of cases. These statements were intended to strengthen theanchoring manipulation.

Subjects were instructed on how to determine liability (e.g., the importance of causality and the preponderance of the evidence standard) and the meaning of compensatory damages. Subjects did not award punitive damages. After reading the case, participants completed a number of judgment questions. First, they were asked whether the defendant was liable; they were reminded that the defendant was liable if the HMO was more likely than not to have caused the plaintiff's injury. Following this dichotomous judgment, subjects responded to the question 'How likely is it that the defendant caused the plaintiff's injury?' on a 0 to 100 scale, where greater than 50 meant 'more likely than not', the preponderance standard. This causality rating was included to provide a more sensitive measure than the dichotomous verdict of the effect of anchoring on subjects' evaluation of the evidence. If subjects found the defendant liable, they then indicated the compensation they would award to the plaintiff, an amount ranging from $0 up to whatever they thought was warranted.

Subjects also made a number of ratings of their perceptions of the litigants. They first rated their overall feelings toward the defendant and the plaintiff, using a -100 to 100 scale, where positive numbers meant positive feelings, and negative numbers indicated negative feelings. Second, subjects rated the plaintiff, Kathy, on five attributes, using a 7-point rating scale. These attributes were as follows: 'How much did Kathy suffer?' (not at all' to 'a huge amount'); 'How generous is Kathy?' (not at all' to 'very generous'); 'How honorable is Kathy?' (not at all' to 'very honorable'); 'How selfish is Kathy?' (not at all' to 'very selfish') and 'Is Kathy someone who fights injustice, even if there is no personal gain?' (no, not at all' to 'yes, definitely'). These questions were chosen to further assess subjects' feelings toward the plaintiff, and to ascertain whether they might assume higher anchors were justified by greater suffering. Finally, subjects estimated the plaintiff's medical expenses.

**Results**

A number of subjects gave inconsistent responses: for example, they awarded money after finding the defendant not liable, or judged the defendant to be liable but gave a causality judgment below 50. These subjects were excluded from analysis, leaving 56 subjects in the analyses reported (analyses using all subjects gave the same results).

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1In the instructions, subjects were told that 'the defendant is legally liable if he is more likely than not to have caused the plaintiff's injury' and that they would 'be provided with opposing scientific evidence about whether or not something is capable of producing a certain kind of injury'. Later, in the case summary, the evidence was presented under a heading titled 'evidence presented at trial' (see Appendix). Subjects were not explicitly told to ignore the *ad damnum* when deciding liability.
**Perceptions of the litigants**

Overall feelings toward the defendant and plaintiff, ratings of the plaintiff on the five attribute scales, and estimates of the plaintiff's medical expenses (the latter with a natural log transform) were each used as the dependent measure in separate one-way analyses of variance (ANOVAs) with the four anchor levels as the independent variable. Mean ratings are reported in Table 1. Ratings of overall feelings toward the litigants were not related to anchor \([F(3, 51) = 1.9; \ p > 0.15]\). Estimates of the plaintiff's medical expenses, ratings of how much she suffered, how honorable she is, and whether she fights injustice were also unrelated to anchor condition \([F(3, 51) < 1; \ p > 0.4]\). Thus, subjects did not assume that a greater requested amount was justified by unstated variations in the extent or subsequent costs of the plaintiff's injury.

Generosity and selfishness ratings did show an effect of anchor \([F(3, 51) > 3.4; \ p < 0.05]\). Planned linear contrasts showed that selfishness ratings increased linearly with anchor value \([F(1, 51) = 13.05; \ p < 0.001]\), while generosity ratings decreased linearly with anchor value \([F(1, 51) = 8.82; \ p < 0.01]\). Thus, anchor condition affected perceptions of the plaintiff along some trait dimensions but not others. It is of interest that these perceptions were not expressed on the same scale as the monetary anchors but were nonetheless influenced by them.

**Liability and causality judgments**

Forty-five percent of the 56 subjects found the defendant liable. This percentage did not vary as a function of anchor condition \(\chi^2(3, \ N = 56) = 2.5; \ p > 0.4\). The percentages of subjects who found the defendant liable were 44%, 29%, 58% and 50% for the lowest to highest anchor conditions.

The more sensitive measure of causality ratings, however, did show an effect of anchor. As anchor value increased, evidence was evaluated more favorably toward the plaintiff. As shown in Table 1, subjects’ causality estimates increased with anchor

<table>
<thead>
<tr>
<th>Anchor</th>
<th>$100</th>
<th>$20,000</th>
<th>$5 million</th>
<th>$1 billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feelings for plaintiff</td>
<td>66.8 (39.7)</td>
<td>66.4 (54.9)</td>
<td>62.9 (34.9)</td>
<td>60.0 (39.4)</td>
</tr>
<tr>
<td>Feelings for defendant</td>
<td>8.2 (33.5)</td>
<td>-16.1 (59.3)</td>
<td>19.9 (41.4)</td>
<td>-7.3 (31.4)</td>
</tr>
<tr>
<td>in Medical expenses</td>
<td>8.9 (4.5)</td>
<td>10.2 (1.9)</td>
<td>10.6 (4.3)</td>
<td>10.5 (3.8)</td>
</tr>
<tr>
<td>Suffering</td>
<td>6.0 (1.6)</td>
<td>6.4 (0.8)</td>
<td>5.9 (1.2)</td>
<td>6.5 (1.1)</td>
</tr>
<tr>
<td>Fights injustice</td>
<td>4.6 (1.9)</td>
<td>3.7 (1.7)</td>
<td>4.0 (1.7)</td>
<td>3.8 (1.5)</td>
</tr>
<tr>
<td>Honor</td>
<td>4.7 (1.3)</td>
<td>4.6 (1.6)</td>
<td>4.1 (1.5)</td>
<td>3.9 (1.4)</td>
</tr>
<tr>
<td>Generosity</td>
<td>4.8 (1.8)</td>
<td>4.9 (1.7)</td>
<td>3.6 (1.6)</td>
<td>3.4 (1.1)</td>
</tr>
<tr>
<td>Selfishness</td>
<td>2.0 (1.7)</td>
<td>2.8 (1.5)</td>
<td>4.0 (1.8)</td>
<td>4.1 (2.0)</td>
</tr>
<tr>
<td>Causality</td>
<td>37.4 (25.8)</td>
<td>26.4 (27.7)</td>
<td>43.9 (31.7)</td>
<td>52.5 (22.8)</td>
</tr>
<tr>
<td>in Compensation</td>
<td>6.9 (4.6)</td>
<td>10.5 (1.0)</td>
<td>13.0 (3.2)</td>
<td>13.1 (1.4)</td>
</tr>
</tbody>
</table>

\(N\)  | 16  | 14  | 12  | 14  |

*Means based on subjects who first found the defendant liable; \(N\) for the four anchor conditions was 7, 4, 7 and 7 respectively.
value. Causality ratings were used as the dependent variable in a one-way ANOVA using anchor condition as the independent variable. The main effect of anchor was marginally significant \( F(3,52) = 2.32; p < 0.09 \). Despite the apparent J-shape, the function is linear, as demonstrated by a significant linear contrast \( F(1,52) = 3.98; p < 0.05 \). Post-hoc Tukey pairwise comparisons showed that the second lowest anchor condition was not significantly different from the lowest anchor condition. Non-linear contrasts were also not significant \( F_{s}(1,52) < 1.9; ps > 0.18 \).

**Compensation**

We next examined the relationship between anchor condition and the compensation subjects awarded to the plaintiff. Dollar amounts were transformed to their natural log. Table 1 shows mean ln compensation for those subjects who first found the defendant liable \( (n = 25) \); subjects who found the defendant not liable were excluded because, by definition, they awarded no compensation. We conducted an ANOVA including these 25 subjects, and using ln compensation as the dependent variable and anchor level as the independent variable. As the anchor amount increased, compensation increased. The overall effect of anchor was significant \( F(3,21) = 5.96; p < 0.01 \), as was the linear contrast \( F(1,21) = 15.24; p < 0.001 \). Non-linear contrasts were not significant \( F_{s}(1,21) < 1.8; ps > 0.2 \). Because the logarithms of the anchor values were evenly spaced, this result indicates that, for the range of anchors used in this study, monetary compensation judgments have a linear relation to anchors in log-log space. Only two subjects awarded the exact amount requested by the plaintiff; both subjects were in the $20,000 anchor condition.

**Additional analyses**

Finally, we assessed the relationship among perceptions of the litigants, causality, and compensation judgments. For subjects who found the defendant liable \( (n = 25) \), compensatory damages were not correlated with causality judgments or any of the rating questions \( rs < 0.18 \; ps > 0.39 \). Notably, awards were not related to estimates of suffering \( r = -0.08; p > 0.71 \) or medical expenses \( r = 0.18, p > 0.39 \). Thus, none of these ratings can explain the anchoring effect on compensation judgments.

Across all 56 subjects, the only rating question correlated with causality judgments was the rating of honor \( r = 0.32, p < 0.02 \); the more honorable the plaintiff was perceived as being, the more likely subjects believed the defendant was to have caused her injury. As discussed above, ratings of honor were not influenced by anchor condition and therefore cannot explain the relationship between anchors and causality judgments.

As reported above, ratings of selfishness and generosity were the only perceptions of the litigants related to anchor condition. These two ratings were also negatively correlated with one another \( r = -0.40, p < 0.01, n = 56 \). Thus, it is not surprising, given that selfishness was related to anchor condition, that generosity would also be related to anchor condition.

**Discussion**

Experiment 1 revealed three main findings. First, plaintiffs asking for extremely high amounts of compensation are perceived less favorably, in that they are viewed as relatively more selfish and less generous. Second, the amount requested nonetheless
provides an anchor for estimates of the probability that the defendant caused the plaintiff's injury. Finally, the amount requested also serves as an anchor that affects compensation awards; this effect is linear, even with the extreme amounts used in this study. The results show clear evidence of a monetary anchoring effect in civil damage awards, as well as a cross-modality effect of anchors on liability judgments.

**Demand effects and anchor relevance**

Unlike previous anchoring demonstrations using more artificial laboratory tasks, the anchoring effects found here are unlikely to be the result of demand effects. The *ad damnum* was one of many pieces of information contained in a one-page case summary. There is no reason to expect that subjects felt particularly obliged to focus on the *ad damnum* rather than information about the plaintiff, the defendant, or evidence presented at trial. It is especially unlikely that subjects would perceive a demand to base their causality judgments on the *ad damnum*.

In personal injury cases, the *ad damnum* could be viewed as relevant in deciding on a monetary award because it indicates the extent of the plaintiff’s suffering. This argument was not supported, however, as there was no effect of compensation requested on subjects' judgments of how much the plaintiff had suffered or of her medical expenses. In addition, damage awards were not correlated with estimates of medical expenses or how much the plaintiff had suffered. Thus, although we did not ask subjects directly whether they viewed the anchors as relevant information, it appears that they did not. Chapman and Johnson (1996) similarly found that the anchoring bias was unrelated to subjects’ perceptions of the anchor’s relevance. Thus, it is unlikely that the anchoring effect on compensation awards occurred because subjects viewed the anchor as relevant information.

**Cross-modality anchoring**

Even if the anchoring effect on monetary judgments could be attributed to perceived relevance of the anchor, the anchoring effect on causality judgments cannot. Subjects were instructed to judge the probability that the defendant caused the plaintiff’s injuries. This judgment was to be based on the evidence presented at trial, not on the extent of the plaintiff’s injuries. The finding of cross-modal anchoring thus provides even stronger evidence that anchoring can occur when the anchor is not perceived as relevant.

Monetary anchors not only affected responses expressed on a monetary scale, but they also influenced causality ratings expressed on a probability scale and subjective ratings expressed on a seven-point rating scale. Interestingly, anchors affected some ratings of the litigants but not others. These rating scales were exploratory, and we made no a priori predictions about which ones would be affected by the anchors. Still, it may be possible to explain why ratings of selfishness and generosity were affected by anchor condition but the other ratings were not. As discussed earlier, selfishness and generosity were negatively correlated with one another, suggesting that they are flip sides of the same construct. The *ad damnum* represents a monetary request, which subjects might view as reflecting the plaintiff’s desire for monetary gain. Generosity and selfishness are probably seen as closely related to this aspect of the plaintiff’s character. In contrast, ratings of how honorable the plaintiff is or whether she fights injustice are less likely to capture varying levels of the plaintiff’s desire for money.
Ratings of the plaintiff's suffering would be related to anchor condition if subjects thought that the *ad damnum* reflected the extent of her injury. As discussed earlier, subjects apparently did not interpret the *ad damnum* in this way. Finally, because the plaintiff's monetary request does not directly reflect the defendant's character, it is understandable that overall feelings about the defendant were unrelated to anchor condition. In summary, Experiment 1 showed that the anchoring effect was not limited to judgments expressed on the same scale as the anchor; anchors also influenced judgments in other modalities. This cross-modality anchoring effect was explored further in Experiment 2.

**EXPERIMENT 2**

Experiment 1 indicated that monetary anchors could affect causality judgments, a demonstration of cross-modality anchoring. The purpose of Experiment 2 was to demonstrate a second cross-modality anchoring effect using the same legal case. In this experiment, the strength of the scientific evidence presented at trial was manipulated to form a high and a low anchor. The anchors were operationalized as the probability (high or low) that the defendant's product is capable of causing the type of injury suffered by the plaintiff. We examined first whether causal evidence would affect liability judgments, as it should, and second whether causal anchors would affect compensation awards (cross-modality anchoring).

**Method**

**Subjects**
The subjects were 172 undergraduates at the University of Illinois at Chicago who participated for class credit.

**Materials and procedure**
Subjects read a description of the same personal-injury suit used in Experiment 1, with slight modifications. In all conditions, the plaintiff requested $300,000 in compensation. The causal evidence presented at trial is described below. Subjects were randomly assigned to one of four conditions that resulted from crossing two anchor conditions with two judgment conditions.

First, subjects were assigned to one of two anchor conditions. All subjects were told that an expert witness testified that she gave 200 female laboratory rats large doses of the contents of the pills prescribed by the defendant. Another 200 female control rats received no medication. This rat study was the only causal evidence presented. Five percent of the control rats developed tumors.

Subjects in the low anchor condition were told that 10% of the experimental rats developed tumors: that is, the rats that took the birth control pill were twice as likely to develop tumors. These subjects were further told that the expert witness testified that it is possible that these results have some implications for the effect on humans of the birth control pills prescribed by the defendant, but she could not say for sure. Subjects in the high anchor condition were told that 90% of the experimental rats developed ovarian tumors: that is, the rats that took the birth control pills were 18 times as likely to develop ovarian cancer. These subjects were further told that the
expert witness testified that these results have indisputably strong implications for the effects on humans of the birth control pills prescribed by the defendant.

Two judgment conditions were crossed with the two anchor conditions. Half the subjects judged both liability and compensation as in Experiment 1 (condition LC, for ‘liability and compensation’). The remaining subjects were told the defendant had already been found liable, and that their task was just to determine how much compensation the plaintiff should receive (condition CO, for ‘compensation only’). Subjects in both conditions read the same description of the trial. The CO condition was included so that an equal number of subjects would provide compensation judgments for both the low and high anchor versions of the case, thereby allowing for a test of cross-modal anchoring on compensation judgments. This manipulation offsets the possibility that too few subjects in the low-anchor LC condition would find the defendant liable.

After reading the case, subjects in the LC condition completed the same judgment questions used in Experiment 1—that is, verdict, causality rating, compensation, and perceptions of the litigants. Those in the CO condition completed these questions with the exception of the dichotomous liability judgment and the continuous causality judgment. To reduce the response variance obtained in Experiment 1 and pilot studies, subjects in all conditions determined compensation by awarding a proportion of the *ad damnum* ($300,000), from 0 to 200% (Thomas and Parpal, 1987). The instructions indicated the absolute amount of damages that corresponded to the various proportions. Possible consequences of using this scale are presented in the General Discussion.

Results

Five subjects who gave inconsistent responses were excluded from analysis, as were five additional subjects who reported not understanding the instructions. This left 162 subjects in the analyses reported.

Perception of the litigants

We first examined the effect of anchor condition on ratings of perception of the litigants using subjects in both the LC and CO conditions. Ratings of feelings for the defendant, overall feelings for the plaintiff, ratings of the plaintiff on the five attributes scales, and estimates of the plaintiff’s medical expenses were each used as the dependent measure in separate two-way ANOVAs with anchor level and judgment condition (LC or CO) as the two independent variables. Mean ratings are presented in Table 2.

Overall feelings for the plaintiff were not related to either factor \([F(1,158) = 2.13; ps > 0.14]\). Feelings for the defendant, however, were affected both by anchor \([F(1,158) = 6.39; p < 0.05]\) and by judgment condition \([F(1,158) = 5.41; p < 0.05]\). As shown in Table 2, sentiment toward the defendant was more negative when there was strong causal evidence that the defendant was liable (high anchor) than when there was weak evidence (low anchor). In addition, sentiment toward the defendant was more negative when the defendant had already been found liable (condition CO) than when subjects were asked to make a liability judgment (condition LC).

None of the other ratings was related to anchor level \([F(1,158) < 1; ps > 0.3]\). Subjects in the CO condition viewed the plaintiff as more generous \([F(1,156) = 8.53; \])
Table 2. Mean ratings (and standard deviations) in Experiment 2 shown as a function of anchor and judgment conditions

<table>
<thead>
<tr>
<th>Judgment condition</th>
<th>Group LC</th>
<th>Group CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor condition:</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Mean feelings for plaintiff</td>
<td>61.0 (30.8)</td>
<td>57.4 (51.1)</td>
</tr>
<tr>
<td>Mean feelings for defendant</td>
<td>-1.4 (44.8)</td>
<td>-14.9* (63.1)</td>
</tr>
<tr>
<td>Mean in medical expenses</td>
<td>10.6 (4.6)</td>
<td>11.2 (2.6)</td>
</tr>
<tr>
<td>Mean suffering of plaintiff</td>
<td>6.3 (1.0)</td>
<td>6.5 (0.6)</td>
</tr>
<tr>
<td>Mean selfishness of plaintiff</td>
<td>3.4 (1.6)</td>
<td>3.5 (1.5)</td>
</tr>
<tr>
<td>Mean generosity of plaintiff</td>
<td>4.0 (1.2)</td>
<td>4.1 (1.2)</td>
</tr>
<tr>
<td>Mean honor of plaintiff</td>
<td>4.4 (1.3)</td>
<td>4.4 (1.2)</td>
</tr>
<tr>
<td>Mean rating of fights injustice</td>
<td>3.9 (1.5)</td>
<td>4.3 (1.4)</td>
</tr>
<tr>
<td>% Judged liable</td>
<td>60.1</td>
<td>87.2*</td>
</tr>
<tr>
<td>Mean causality</td>
<td>47.9 (24.7)</td>
<td>71.7* (22.5)</td>
</tr>
<tr>
<td>% Awarding more than ad damnum</td>
<td>100.0 (120)a</td>
<td>150.0* (100)a</td>
</tr>
<tr>
<td>Median compensation (% of ad damnum)</td>
<td>38</td>
<td>39</td>
</tr>
</tbody>
</table>

*Significant difference (p < 0.05) between anchor conditions.

p < 0.01) and slightly more honorable [F(1,157) = 3.88; p < 0.06] than subjects in the LC condition. Thus, if the defendant had already been found liable (condition CO), the defendant was viewed more negatively and the plaintiff was viewed more positively.

**Liability and causation**

Verdicts and judgments of causation were examined for the 77 subjects in the LC condition. Seventy-four percent of these subjects found the defendant liable. This percentage varied as a function of the causal evidence presented. As shown in Table 2, 60% of subjects presented with weak evidence found the defendant liable, compared to 87% presented with strong evidence [χ²(1,N = 77) = 7.1; p < 0.01]. Causality ratings also showed an effect of evidence presented. The mean causality estimate was 47.9 (std = 24.73) in the weak evidence condition compared to 71.7 (std = 22.49) in the strong evidence condition [t(75) = 4.42; p < 0.0001]. Subjects showed a slight tendency to report the exact anchor. Subjects in the strong evidence condition were told that 90% of the experimental rats developed tumors, and 7 of 39 subjects gave a causality rating of 90. In contrast, only 2 subjects in the weak evidence condition gave a causality rating of 90 [χ²(1,N = 77) = 7.5; p < 0.02]. Subjects in the weak evidence condition were told that 10% of the experimental rats developed tumors, but only 2 of 38 subjects gave a causality judgment of 10. No subjects in the strong evidence condition gave a causality rating of 10 [χ²(1, N = 77) = 2.1; p > 0.2]. Other responses were more common than the exact anchor amounts. In summary, subjects were more likely to find the defendant liable when there was strong evidence that the prescribed birth control pills could cause ovarian cancer. This result shows that subjects were properly sensitive to variations in the strength of the formally presented evidence (Kalven and Zeisel, 1996; Vischer, 1987). Thus, in this case, the effect of causal evidence is rational and not an anchoring bias.
Compensation
The next question of interest was whether causal anchors influenced the compensation subjects awarded to the plaintiff. We examined this relationship for the 85 subjects in condition CO. Looking only at these subjects avoided the need to eliminate subjects who did not find the defendant liable. (An analysis including the 57 subjects in the LC condition who found the defendant liable yielded similar results). Compensatory judgments were bimodally distributed: 28% of subjects awarded exactly the ad damnum (i.e., 100%), and another 28% awarded the maximum amount of twice the ad damnum. Because of this unusual distribution, compensatory judgments were divided into two categories for analysis: those greater than the ad damnum and those equal to or less than the ad damnum. As shown in Table 2, 57% of those in the high anchor condition awarded more than the ad damnum, compared to only 35% in the low anchor condition [$\chi^2(1,N=85) = 4.24; p < 0.05$]. Table 2 also shows the median compensation judgments for the two anchor conditions. A one-tailed Wilcoxon test showed a significant difference between these two conditions [$Z(84) = 1.64; p = 0.05$]. Thus, the strength of the causal evidence influenced the compensation awarded.

Additional analyses
We examined whether causality judgments and compensation awards were correlated with perceptions of the litigants. For CO subjects, we examined the correlations between the dichotomous measure of compensation used above and subjects' ratings of the litigants. Compensation was negatively correlated with overall feeling for the defendant and ratings of how selfish the plaintiff was ($rs < -0.33, n = 84; ps < 0.005$) and positively correlated with overall feeling for the plaintiff and ratings of whether she fights injustice ($rs > 0.25, n = 84; ps < 0.05$). Compensation awards were not correlated with subjects' ratings of how honorable she was ($r = 0.10, n = 84; p > 0.3$), and only marginally related to ratings of generosity ($r = 0.19, n = 84; p < 0.08$). Most importantly, compensation was uncorrelated with estimates of the plaintiff's medical expenses ($r = -0.07, n = 83; p > 0.5$) and ratings of how much she suffered ($r = 0.15, n = 85; p > 0.16$), two factors that normatively should be the basis for compensation.

For LC subjects who found the defendant liable ($n = 57$), causality judgments were not correlated with compensation awarded ($r = 0.09; p > 0.5$). Across all LC subjects ($n = 77$), causality judgments were positively correlated with ratings of whether the plaintiff fights injustice ($r = 0.24; p < 0.05$), but not with any other perceptions of the litigants ($rs < 0.17; ps > 0.14$). Dichotomous liability judgments were also correlated with ratings of whether the plaintiff fights injustice ($r = 0.30; p < 0.01$) but not with any other perceptions ($rs < 0.12; ps > 0.3$).

Finally, we assessed whether the effect of the strength of the causal evidence on causality and compensation judgments could be explained by subjects' perceptions of the litigants. For LC subjects, the only ratings correlated with causality judgments were ratings of whether the plaintiff fights injustice. Because these ratings were not affected by anchor condition, they cannot explain the relationship between strength of the causal evidence and causality judgments. For CO subjects, however, the relationship between anchors and compensation judgments could be explained by perceptions of the litigants. As reported above, the high anchor condition resulted in lower ratings of feelings for the defendant. In addition, lower ratings of feelings for
the defendant were associated with higher compensation judgments. Thus, feelings for the defendant may mediate the relationship between anchor condition and compensation awards. To test this possibility using subjects in the CO condition, we added ratings of feelings for the defendant as a covariate to a logistic regression model in which anchor condition was the independent variable and the dependent variable was whether or not the compensation award was greater than the *ad damnum*. Addition of the covariate decreased the odds ratio for anchor condition from a significant odds ratio of 2.5 ($p < 0.05$) to a non-significant odds ratio of 1.9 ($p > 0.17$). Thus, by the criteria outlined by Baron and Kenny (1986), feelings for the defendant mediate the relationship between causal anchors and compensation awards.

**Discussion**

Experiment 2 points to three main findings. First, the strength of the causal evidence influenced liability and causality judgments. Subjects presented with strong evidence were more likely to find the defendant liable and also gave higher causality judgments. This effect of causal evidence does not constitute an anchoring bias, as liability judgments should be based on the likelihood that the prescribed pills caused the plaintiff's cancer. Strong evidence presented at trial raises this likelihood.

Second, causal evidence influenced perceptions of the defendant, serving as an example of a cross-modality effect. This effect of causal evidence does not necessarily constitute a bias. Subjects presented with strong evidence were more confident that the defendant had caused the plaintiff's injury and thus viewed the defendant more negatively than did subjects presented with weak evidence. This could have occurred, for example, if subjects in the strong evidence condition reasoned that the defendant may have known of the strong evidence at the time the pills were prescribed. The strength of the causal evidence influenced only some of the ratings of the litigants. Specifically, they influenced feelings toward the defendant but not toward the plaintiff. This result can be explained by the fact that the causal evidence presented at trial did not reflect the plaintiff's character and thus did not influence ratings of her.

The third and most interesting result is that causal anchors influenced monetary compensation judgments. Subjects in the high anchor condition were more likely to award more than the *ad damnum* than were those in the low anchor condition. This effect of anchors constitutes an extra-legal bias, in the sense that the causal anchors are technically irrelevant evidence in awarding damages. Compensation awards should be based on the extent of the plaintiff's suffering, and not on the quality of the evidence determining liability. Compensation awards, however, were not correlated with ratings of the plaintiff's suffering or estimates of her medical expenses. Subjects displayed a tendency to award either the exact *ad damnum* or a multiple thereof (see Raitz et al., 1990), providing an indirect replication of the *ad damnum*'s same-modality anchoring effect on compensation as observed in Experiment 1.

Subjects in the CO condition were informed that the defendant had already been found liable and that their task was to award compensation. Some subjects in the low anchor condition may have felt that because the evidence was relatively weak, the defendant should not have been found liable and consequently may have
awarded zero compensation. However, only one CO subject in the low anchor condition and two CO subjects in the high anchor condition awarded zero compensation. Thus, it does not appear that subjects’ opinions about the previous liability judgment are responsible for the observed relation between anchors and compensation.

The anchoring effect on compensation represents another example of cross-modality anchoring. Causal anchors, expressed as the percentage of experimental and control rats to develop cancer, influenced monetary compensatory judgments. In addition, causal anchors affected compensation by way of negative sentiment for the defendant. Strong causal evidence resulted in negative feelings for the defendant which, in turn, resulted in relatively high compensation for the plaintiff. This relationship suggests that subjects in the high anchor condition may have given large awards as a way of punishing the defendant. Normatively, only punitive damages should be used to punish the defendant. In this experiment subjects did not award punitive damages and therefore may have used compensatory damages to serve a punitive function. This finding is consistent with other research showing that the effect of extra-legal factors on jurors’ judgments is often mediated by how those factors influence jurors’ feelings toward the litigants (e.g., Bornstein, 1994; Kalven and Zeisel, 1966).

Feelings for the defendant were also affected by judgment condition. The defendant was viewed more negatively and the plaintiff was viewed more positively if the defendant had already been found liable (condition CO). This result suggests that the mere fact of a prior liability judgment may work against the defendant in the penalty phase of a civil trial. This effect on sentiment did not translate into an effect on compensation awards, however. LC subjects who found the defendant liable were no less likely to award more than the ad damnum (35%) than were CO subjects [46%, \( \chi^2(1, N = 142) = 1.64; p > 0.2 \)].

Other research also suggests that separating the fact-finding and penalty phases of a trial may influence jurors’ judgments. Horowitz and Bordens (1990) found that bifurcated civil juries (who determined liability and compensation separately) awarded more compensation than unitary juries (who judged liability and compensation together). Both types of juries made the same judgments, but the bifurcated juries had to render a decision on liability before hearing evidence relevant to compensation. Interestingly, Horowitz and Sequin (1986) found a different result with criminal juries. In their study, juries empanelled for the penalty phase only of a criminal trial gave more lenient sentences than those who participated in both trial phases. Although separating the two phases of a trial clearly affects jurors’ judgments, more research is needed to clarify the effects of trial bifurcation.

**GENERAL DISCUSSION**

These experiments demonstrated that both causal evidence and requested compensation influence causality judgments, compensation awards, and perceptions of the litigants. These results have implications for explanations of the anchoring bias. Anchoring in these experiments is unlikely to be due to demand effects, because subjects were engaged in a realistic task involving numerous pieces of information in addition to the anchors. Whereas many previous demonstrations of
anchoring (e.g., Chapman and Johnson, 1994; Tversky and Kahneman, 1974) included explicit prompts for subjects to compare their answer to the anchor, in the present studies the anchors were embedded in a case summary full of other information. Thus, the present studies indicate that irrelevant anchors can influence judgments even in the absence of a prompt to draw subjects’ attention to them.

The anchoring effects represent biases rather than the use of relevant information. For example, the *ad damnum* should be irrelevant in determining liability, and the causal evidence should be irrelevant when determining compensation. Although in some cases jurors perceive extra-legal factors as relevant (e.g., Bornstein, 1994; Bornstein and Rajki, 1994), the fact that anchors did not affect ratings of the plaintiff’s suffering or medical expenses suggests that our subjects did not view them as relevant. In any event, the influence of technically irrelevant anchors constitutes an extra-legal bias.

**Cross-modality anchoring**

An important aspect of these results, with implications for explanations of anchoring, is the finding of cross-modality anchoring. In both experiments, an anchor expressed on one scale affected judgments expressed on a different scale. In Experiment 1, monetary anchors not only affected responses expressed on a monetary scale, but they also influenced causality ratings expressed on a probability scale and subjective ratings expressed on a seven-point rating scale. In Experiment 2, causal evidence expressed on a percentage scale not only affected verdicts and causality judgments, but also influenced perceptions of the defendant and compensation judgments.

In Experiment 2, it is possible that causal anchors had their effect on compensation judgments because awards were expressed on a 0–200 scale rather than in terms of dollars. This 200-point scale was somewhat similar to the percentage scale used to express the causal anchors (i.e., the percentage of experimental rats who developed tumors; a previous pilot study did not find an effect of causal anchors on compensation expressed in dollar amounts). Use of a 200-point scale might facilitate an anchoring effect by increasing the compatibility between causal anchors and the monetary scale. Another possibility, however, is that the 200-point scale limited the variation in compensation awards by putting a cap on high awards. The 200-point scale also influenced variation in awards by causing subjects to consider their damage awards in terms of multiples of the *ad damnum*, as evidenced by the many subjects who awarded 100% or 200% of the requested amount. Decreasing the variation in compensation awards could reduce noise in the data and thereby aid in the detection of an anchoring effect. The effect of causal anchors was clearly not limited to ratings on a 200-point scale, as evidenced by the effect of causal evidence on ratings of the defendant. Further experimental work should address the effect of expressing compensation on a percentage scale (Thomas and Parpal, 1987). If such a scale makes compensation awards more sensitive to the causal evidence, then plaintiffs with a strong case may benefit from encouraging jurors to view compensation as a percentage of the *ad damnum*.

In both experiments, the anchoring effect was not limited to judgments expressed on the same scale as the anchor; anchors also influenced judgments in other modalities. Previous research by Chapman and Johnson (1994) found no anchoring
when the anchor and response were expressed on different scales. In an even more extreme result, Markovsky (1988) found contrast effects (the opposite of anchoring) when he used anchors expressed on a scale different from the response. How can we explain the discrepancy between these results and the cross-modality anchoring found in the present experiments?

Chapman and Johnson (1994) reasoned that anchors facilitate the retrieval of reasons why the anchor is similar to the target judgment, but obstruct the retrieval of reasons why the anchor is different from the target. Furthermore, this confirmatory search process is more likely to occur when the anchor and target response are compatible. Thus, in their experiment, life expectancy anchors did not elicit reasons that influenced monetary judgments because the longevity anchors were not viewed as meaningfully related to the monetary judgments. In contrast, in the present experiments, the liability judgment and compensation award are two components of the same jury task. Although requested compensation is technically irrelevant to the liability decision, they are linked in that both are related to the trial outcome.

Markovsky (1988) uncovered a contrast effect by using anchors that served as reference points. His subjects assigned a higher wage to a worker if that worker had just been compared to a less competent reference point than if the comparison were to a more competent reference point. No such reference points were present in our experiment. For example, subjects did not compare the defendant to another, less responsible, defendant.

Thus, the discrepancy between our results and those of Markovsky (1988) and Chapman and Johnson (1994) may be more apparent than real. Our results suggest that cross-modality anchoring can occur if the anchors and responses are complementary aspects of the same judgment situation and if anchors are not viewed as reference points. Further research is needed, however, to determine the specific conditions necessary for cross-modality anchoring effects to occur.

Cross-modality anchoring has implications for the cognitive processes underlying the anchoring bias. Chapman and Johnson (1996) differentiate between the phenomenon of anchoring and potential psychological mechanisms that could produce this effect. The term ‘anchoring and adjustment’ suggests a mechanism whereby the decision maker starts with the anchor as an initial estimate and then makes insufficient dynamic adjustments toward the final judgments. If the anchor is expressed in a different modality from the final judgment, however, there is no appropriate scale along which to adjust. Thus, in order for this dynamic adjustment mechanism to explain cross-modality anchoring, the anchor would first need to be translated onto the response scale before adjustments are made—an added complication. Cross-modality anchoring could be explained more easily by Chapman and Johnson’s (1994, 1996) Confirmatory Search model, discussed above. According to this model, the anchor facilitates the retrieval of reasons why the anchor is similar to the target judgment, but limits the retrieval of reasons why the anchor is different from the target. As discussed above, this confirmatory search process is more likely to occur when the anchor and target are seen as meaningfully related, as when both are part of the same jury task.

**Courtroom applications**

In attempting to generalize from the present results to the behavior of real jurors, it is important to highlight the major differences between the methodology used and
actual trials. Most noticeably, the participants in the present experiments read a brief summary of a trial, rather than being presented with a cognitively much more demanding live trial, they did not deliberate, and they made decisions without real consequences for the simulated litigants. Furthermore, an undergraduate student sample is not representative of a community-wide jury pool; it is unusually homogeneous in terms of race, age, and socioeconomic status. It is difficult to know the extent to which the results of such simulations can be applied to court-room situations (Bray and Kerr, 1982).

With regard to participants' representatives, a limitation of the present research is that the 'jurors' were relatively homogeneous. Although the behavior of student mock jurors has not been shown to differ systematically from that of non-students, variables that covary with student status—such as race, income, and education level—do affect mock jurors' use of extra-legal information (Bornstein and Rajki, 1994). Thus, we are unable to say with certainty that anchors would influence jurors drawn from a more diverse population in the same way as participants in the present experiments; their effects could be greater, less or the same.

An additional limitation of the present studies is that participants did not reach their verdicts through deliberation. It would be interesting to know what effect the deliberation process would have on the anchoring effects demonstrated in individuals. Although group deliberation seldom produces a verdict different from the majority's pre-deliberation preferences (Hastie, Penrod, and Pennington, 1983), previous research has not directly addressed the effect of extra-legal factors on the deliberation process.

Although the anchors used in the present experiments might have stood out more in the brief written descriptions than they would have in a richer, more complex trial, as discussed above, it is unlikely that such a demand effect would influence cross-modality anchoring. That could only have occurred if participants thought, for example, that the experimenters wanted them to base their liability judgments on the *ad damnum*. Little research has been conducted on the effect of using simulations with varying degrees of verisimilitude, and that which has been done offers conflicting results. For example, Juhnke, Vought, Pyszczynski, Dane, Losure and Wrightsman (1979) found that mock criminal jurors were increasingly more likely to convict as the trial simulation became more realistic (e.g., a videotaped trial vs. a written transcript), while Bermant, McGuire, McKinley, and Salo (1974) obtained fewer convictions with more realistic trial media. These results suggest that more research is needed to explore the conditions under which a trial's presentation mode is more or less likely to have an effect. Importantly, even if a simulation's verisimilitude did have a consistent main effect (e.g., a greater proportion of plaintiff verdicts in more realistic trials), it does not necessarily follow that this variable would interact with other variables of interest (Kramer and Kerr, 1989). That is, there is no reason to predict that the effect of monetary anchors would be either greater or less with a videotaped simulation, as opposed to a written summary.

Thus, despite these limitations, our results, taken with a proper degree of caution, have potential applications to legal practice. An expected utility approach to filing a personal injury case entails considering both the probability of winning the case and the size of the monetary award if one wins (Lempert and Sanders, 1986). The *ad damnum* should be picked so as to maximize the expected utility of the award—that is, the probability of winning multiplied by the utility of the award. In Experiment 1,
we hypothesized that a very high *ad damnum* would increase the size of the award if the defendant were found liable, but would also decrease the probability of a verdict in favor of the plaintiff. Contrary to this hypothesis, we found that higher requested compensation led to higher causality judgments as well as larger awards. In Experiment 1, even requests as high as $1 billion did not reduce the plaintiff's probability of winning.

Interestingly, the influence of the anchor on perceptions of the plaintiff was inconsistent with its effect on causation judgments. Plaintiffs asking for more money were seen as more selfish and less generous, yet they were paradoxically more likely to win their case. Based on these results, plaintiffs would be wise to request very large compensation awards.

In Experiment 1, although monetary anchors affected causality judgments, they did not influence subjects' verdicts. Because it uses a continuous scale rather than two categories, the causality rating is a more sensitive measure of the anchoring effect. The fact that anchors did not influence liability judgments suggests a modest anchoring effect. The effect size for the anchoring effect on causality was 0.34 (Cohen's f, Cohen, 1988), a medium value. The effect size for liability judgments was 0.21 (Cohen's w), a smaller value. Nonetheless, a small effect could still be important in close cases. In Experiment 1, the lowest anchor resulted in a mean causality rating of 37%, whereas the highest anchor led to a mean rating of 52%. A 15% difference in causality judgments could often mean the difference between a defendant found liable and one found not liable.

The effects of causal evidence anchors also have implications for the courtroom. In Experiment 2, when the causal evidence was strong, subjects gave higher causality judgments and were more likely to find the defendant liable. This rational use of evidence speaks well for jurors' abilities (Visher, 1987). However, causal evidence also influenced compensation awards, even when the defendant had already been found liable. Technically, compensation awards should be based only on the extent of the plaintiff's injury, and not on the evidence that the defendant caused that injury. Nevertheless, causal evidence influenced compensation judgments. Thus, even during the penalty phase of a civil trial when the defendant has already been found liable, the plaintiff would benefit by re-presenting any strong available evidence that the defendant caused the plaintiff's injury. This application is analogous to prosecutors in criminal cases calling attention during the penalty phase to evidence of the defendant's guilt.

Defense attorneys would probably wish to eliminate the anchoring effect so as to prevent strong causal evidence from influencing compensation awards, or the *ad damnum* from influencing liability judgments. One possible method to minimize anchoring effects in courtroom settings is to bifurcate trials (e.g., Hammitt, Carroll and Relles, 1985), so that different juries decide on liability and compensation. The compensation jury would not be presented with the evidence used to establish liability, and vice versa. Consequently, anchoring across the different types of judgments could not occur. As noted above, bifurcation has been shown to have a marked effect on jurors' compensation awards (Horowitz and Bordens, 1990). Wexler and Schopp (1989) have proposed bifurcation as an effective means of reducing cognitive biases in mental health malpractice litigation, where, as in the present experiments, issues of causality and expert scientific testimony are of central importance.
Conclusions

These two experiments demonstrate another application of behavioral decision research to the courtroom (cf. Arkes, 1989; Saks and Kidd, 1980). Anchoring, a bias found in numerous settings, also occurs in civil liability cases when the plaintiff requests a specific amount of compensation or when causal evidence influences compensation judgments. An important topic for future research is whether such anchoring effects occur in real courtroom cases. This question could be addressed through an archival analysis of similar cases that vary in either the *ad damnum* or the strength of the evidence.

Just as decision theory has something to contribute to the legal setting, so the legal setting adds to an understanding of decision theory. In previous anchoring experiments, anchors did not influence judgments expressed on a different scale. In addition, anchoring results could often be explained by demand effects, or by postulating that subjects did not view the anchor as truly arbitrary. Use of a simulated courtroom setting revealed cross-modality anchoring. In addition, these anchoring effects cannot be explained by mere demand effects or assumptions of relevance.

REFERENCES


**APPENDIX: CASE USED IN EXPERIMENT 1**

THE PLAINTIFF: Kathy, a 32-year-old housewife, had ovarian cancer. Since it was detected late, doctors had to remove both ovaries. The operation involved major
surgery that required a week-long stay in the hospital, and it left a large red scar. Because both ovaries were removed, Kathy is consequently unable to have children. Although they did not yet have any, she and her husband really wanted to have children. They were planning to start a large family around the time that Kathy was diagnosed.

Late detection also means that Kathy’s prognosis is poor. The cancer has spread since the surgery, which was two years ago. Kathy is almost constantly in pain, and her life expectancy is very short. Doctors do not expect her to survive beyond a few more months.

Because of her poor health, Kathy has been confined to her home. She has been too weak to spend much time with friends or family members, and she has been unable to enjoy most of her favorite activities, such as biking, writing poetry, and travelling.

THE DEFENDANT: Kathy is suing her health care provider, the Greater Community Health Maintenance Organization (HMO), who prescribed her birth control pills, claiming that the pills caused her cancer. Although several brands of birth control pills are available, Kathy’s HMO has a policy of prescribing this particular brand. Kathy had been using this particular brand of pills for approximately 5 years, without any previous problems.

ISSUE AT TRIAL: The major issue at trial is whether or not the pills cause cancer. If so, then the Greater Community HMO is liable for damages, since both parties accept that Kathy used the brand of pills prescribed by the HMO; if not, then the Greater Community HMO is not liable.

EVIDENCE PRESENTED AT THE TRIAL: Plaintiff’s expert witness testifies that there is considerable variability among different birth control pills. Although the federal government sets guidelines, it leaves drug companies some leeway in designing their own product. The expert witness gave female laboratory rats large doses of the contents of pills manufactured by one of five different companies, for a period of one year. She then evaluated their health on a variety of measures and compared across different pill brands. Rats that took the birth control pill prescribed by the defendant developed five times more health complications than the average. She concludes that the defendant’s pill could lead to similar health problems, including ovarian cancer, in humans.

Defendant’s expert witness testifies that birth control pills in general do not increase the risk of cancer. A national survey of women showed that 3 out of every 1000 women aged 30–40 develop ovarian cancer, regardless of what kind of birth control they use. Her study compared women who used IUDs, condoms, pills, diaphragms with spermicidal jelly, or no birth control at all. Cancer rates did not differ for women in the different groups. She concludes that the birth control pill prescribed by the defendant, one of many brands used by women in the study, does not therefore increase the risk of ovarian cancer.

Kathy is asking for $100 [($20,000; $5 million ($5,000,000); $1 billion ($1,000,000,000)] to compensate for her pain, suffering and emotional distress. This requested amount is much less (a little less, a little more, a lot more) than the average amount requested by plaintiffs in these sorts of cases. Her medical bills were completely covered by insurance, and since she did not have a job, she did not lose any income. So in this case compensatory damages are only to compensate the plaintiff for pain and suffering.