Research Article

PARTITION PRIMING IN JUDGMENT UNDER UNCERTAINTY

Craig R. Fox[1] and Yuval Rottenstreich[2]

[1]Anderson School of Management, University of California at Los Angeles, and [2]Center for Decision Research, Graduate School of Business, University of Chicago

Abstract—*We show that likelihood judgments are biased toward an* ignorance-prior probability *that assigns equal credence to each mutually exclusive event considered by the judge. The value of the ignorance prior depends crucially on how the set of possibilities (i.e., the state space) is subjectively partitioned by the judge. For instance, asking "what is the probability that Sunday will be hotter than any other day next week?" facilitates a two-fold* case partition*, {Sunday hotter, Sunday not hotter}, thus priming an ignorance prior of 1/2. In contrast, asking "what is the probability that the hottest day of the week will be Sunday?" facilitates a seven-fold* class partition*, {Sunday hottest, Monday hottest, etc.}, priming an ignorance prior of 1/7. In four studies, we observed systematic* partition dependence*: Judgments made by participants presented with either case or class formulations of the same query were biased toward the corresponding ignorance prior.*

Over the past 30 years, an abundance of psychological research has explored how people judge the likelihood of uncertain events, from the outcome of an operation to the future value of the stock market, to the winner of an election. Most notably, researchers have demonstrated that people rely on a limited set of heuristics, such as representativeness and availability, that reduce likelihood judgment to more basic operations, such as similarity assessment and memory retrieval (Kahneman, Slovic, & Tversky, 1982). For example, the probability that Harry is a lawyer might be estimated by evaluating the extent to which Harry matches one's prototype of a lawyer; the probability of snow next Christmas Day might be estimated by evaluating the ease with which instances of snowy Christmases come to mind.

Heuristics such as representativeness and availability entail evaluation of the *nature* of a target event (e.g., "he is fairly similar to my prototype" or "instances readily come to mind"). In this article, we provide evidence that people also take into account the *number* of comparable events that they think could occur. For example, imagine a race among five unfamiliar horses. A person who has no information concerning the horses' abilities might assign an *ignorance-prior* probability of 1/5 to each horse winning. The intuitive appeal of this approach was apparent to early probability theorists. Indeed, Leibniz and Laplace advanced a notion that has come to be known as the *principle of insufficient reason*, according to which "if we see no reason why one case should happen more than the other," then these cases should be treated as equally likely (Laplace, 1776, quoted in Hacking, 1975, p. 132; cf. Leibniz, 1678, cited in Hacking, 1975, chap. 14).

Despite its intuitive appeal, the principle of insufficient reason leads to systematic inconsistencies, because the value of the ignorance prior depends crucially on how the set of possibilities (i.e., the state space) is partitioned. Suppose you are asked to judge the probability that the Jakarta Stock Index (JSX) closes below 1,000 tomorrow. This query suggests a binary partition: the index will close either (a) below 1,000 or (b) at 1,000 or above. This partition yields an ignorance prior of 1/2. Now, suppose you are instead asked to judge the probability that the JSX closes above 10,000. This query also suggests a binary partition, {above 10,000; 10,000 or below}, again yielding an ignorance prior of 1/2. However, it seems unreasonable to assign a probability of 1/2 to both {below 1,000} and {above 10,000}; doing so implies that the intermediate event, {from 1,000 to 10,000}, is impossible. To wit, suppose you are asked to judge the probability that the JSX closes between 1,000 and 10,000. This question may suggest a three-fold partition, {below 1,000; from 1,000 to 10,000; above 10,000}, yielding an ignorance prior of 1/3 for each possibility! Under the ternary partition, not only does the intermediate event receive positive probability, but the extreme events are now each assigned a probability of 1/3 rather than 1/2. In sum, reliance on an ignorance prior yields probabilities that are *partition dependent*. That is, the judged probability of each event varies as the set of events is partitioned in different ways.[1]

Although the principle of insufficient reason is normatively deficient (see, e.g., Baron, 2001, pp. 100–101; von Mises, 1981, pp. 75–76), the JSX and horse-race examples suggest that people may intuitively rely on this principle when they have little or no relevant knowledge that they can use to distinguish among events (i.e., in judgment under *ignorance*). Of course, in most situations people do have relevant knowledge. We suggest that in such circumstances (i.e., in judgment under *uncertainty*), people persist in using the principle of insufficient reason. That is, they rely on both evaluative assessment and the principle of insufficient reason. This hypothesis yields a novel prediction: Judgments under conditions of both ignorance and uncertainty should exhibit systematic partition dependence.

In many situations, more than one partition of a given state space could occur to the judge. In the experiments that we report here, we manipulated the relative salience of different partitions of the same state space by varying the linguistic formulation of the probability query, and tested for partition dependence. For example, suppose one is asked the probability that "Sunday will be hotter than every other day next week." By mentioning the target event (Sunday) at the outset, this query facilitates a binary *case partition*: Sunday either will or will not be hotter than every other day. Alternatively, suppose one is asked the probability that "next week, the hottest day of the week will be Sunday." By mentioning an entire class of comparable events at the outset, and only then identifying the target event, this query facilitates a seven-fold *class partition*: {Sunday hottest, Monday hottest, . . .}. The principle of insufficient reason yields an ignorance prior of 1/2 for

Address correspondence to Craig R. Fox, The Anderson School at UCLA, 110 Westwood Plaza #D511, Box 951481, Los Angeles, CA 90095-1481; e-mail: craig.fox@anderson.ucla.edu.

1. It could be argued that asking about the JSX closing above 1,000 or 10,000 or any other value implicitly suggests that the questioner believes there is a nonnegligible probability that this target event will occur (cf. Grice, 1975). Thus, partition dependence in the JSX illustration could in part reflect rational responses to conversational norms (for further discussion, see Fox & Clemen, 2002). This caveat does not apply to our experimental examples, all of which hold the target event constant and manipulate the salience of alternative partitions.

Table 1. *Ignorance priors and median responses in Study 1a*

	Case prime		Class prime	
Item	Ignorance prior	Median judged probabilities	Ignorance prior	Median judged probabilities
Weather	(.50, .50)	(.30, .70)	(.14, .86)	(.15, .85)
Sports	(.50, .50)	(.30, .70)	(.10, .90)	(.10, .90)
Business	(.50, .50)	(.30, .70)	(.03, .97)	(.03, .97)

the case partition and 1/7 for the class partition. Hence, if people make use of the ignorance prior, judgments should be biased toward 1/2 under the case formulation and 1/7 under the class formulation.[2]

In this article, we provide evidence of partition dependence in judgment under ignorance (Studies 1a and 1b), judgment under uncertainty (Studies 2 and 3), and decision making (Study 4). In the conclusion, we (a) discuss the implications of partition dependence for frequency estimation, joint versus separate evaluations of likelihood, and conditional reasoning; (b) identify instances of partition dependence outside the domain of likelihood judgment; and (c) suggest an approach to modeling partition dependence within the framework of support theory.

STUDY 1A: PARTITION PRIMING UNDER IGNORANCE

In Study 1a, University of Chicago undergraduates completed a questionnaire in return for $1. Participants judged the probabilities of items concerning (a) the noontime temperature at O'Hare Airport, (b) the Big Ten Conference scoring title in women's lacrosse for the upcoming season, and (c) the leading stock of 30 listed on the Dow-Jones Industrial Average (DJIA). The order of items was fully counterbalanced.

Participants in the *case-prime* condition ($n = 41$) assigned probabilities to three pairs of complementary hypotheses: (a) "the temperature on Sunday will be higher than every other day next week" and "the temperature on Sunday will not be higher than every other day next week"; (b) "the University of Illinois will win the scoring title" and "the University of Illinois will not win the scoring title"; and (c) "tomorrow General Motors' (GM's) stock price will rise by more than any other stock on the DJIA" and "tomorrow General Motors' (GM's) stock price will not rise by more than any other stock on the DJIA."

Participants in the *class-prime* condition ($n = 53$) assigned probabilities to three pairs of complementary hypotheses: (a) "next week, the highest temperature of the week will occur on Sunday" and "next week, the highest temperature of the week will not occur on Sunday"; (b) "the team that wins the scoring title will be the University of Illinois" and "the team that wins the scoring title will be a team other than the University of Illinois"; and (c) "tomorrow on the DJIA, the stock whose price will rise by the greatest amount will be General Motors (GM)" and "tomorrow on the DJIA, the stock whose price will rise by the greatest amount will not be General Motors (GM)."

We suggest that the case prime facilitates an ignorance-prior distribution of (1/2, 1/2) for all three items, whereas the class prime facilitates an ignorance-prior distribution of (1/7, 6/7) for the weather item, (1/10, 9/10) for the sports item,[3] and (1/30, 29/30) for the finance item. Hence, if participants rely on the ignorance prior, judged probabilities should be higher under the case primes than under the class primes.

Median responses are listed in Table 1. As predicted, judgments were closer to (1/2, 1/2) under the case prime and closer to ($1/n$, $(n - 1)/n$) under the class prime for all three items ($p < .01$ by Mann-Whitney for each item). Table 2 lists the percentages of responses equal to the case and class ignorance priors. Collapsing across all three items, (1/2, 1/2) responses were more common under the case prime (19% of responses in the case-prime condition vs. 8% of responses in the class-prime condition), whereas ($1/n$, $(n - 1)/n$) responses were more common under the class prime than under the case prime (49% vs. 19% of responses). It is worth noting that many participants did not report a judgment that coincided precisely with either ignorance prior. It could be that for these participants the task did not entail ignorance in the purest sense. Some respondents may have applied a small degree of relevant knowledge (e.g., "forecasts call for cool weather early next week").

Although we attributed the results of Study 1a to reliance on different ignorance priors, we could not rule out a simple alternative interpretation: Class formulations may depress probability judgments relative to case formulations. Note that every item in Study 1a facilitated a class ignorance prior (1/7, 1/10, 1/30) that was lower than the case ignorance prior (1/2). Accordingly, in Study 1b, we attempted to replicate the partition-priming effect using a query that facilitates a higher class than case ignorance prior.

STUDY 1B: CLASS IGNORANCE PRIOR HIGHER THAN CASE IGNORANCE PRIOR

In Study 1b, Duke University M.B.A. students completed a survey in exchange for a donation to a charity. They were told, "The following question refers to the week beginning Monday and continuing through next Sunday." Participants in the case-prime condition ($n = 22$) were asked:

> Please estimate the probability that the high temperature next week during the week (Mon-Fri) will be warmer than the high temperature on the weekend (Sat-Sun).

2. Our use of the terms *case* and *class* is analogous to the usage of Kahneman and Lovallo (1993; see also Kahneman, & Tversky, 1979), for whom "case data" referred to a specific target event and "class data" referred to a set of events "chosen to be similar in relevant respects to the present one" (p. 25).

3. Most people believe the Big Ten has 10 teams, but, in fact, it has 11. Thus, for some participants, the class ignorance prior may have been (1/11, 10/11).

Table 2. *Percentage of ignorance-prior responses by experimental condition in Study 1a*

	Case ignorance-prior responses		Class ignorance-prior responses	
Item	Case-prime condition	Class-prime condition	Case-prime condition	Class-prime condition
Weather	15	8	17	49
Sports	20	11	22	64
Business	22	4	17	34
Overall	19	8	19	49

Note. Responses were scored as equal to the class ignorance prior if they were .14 or .15 for the weather item (hottest day is Sunday), .09 or .10 for the sports item (title winner is University of Illinois), and .03 for the business item (biggest gainer is General Motors).

This wording was designed to facilitate an ignorance prior of 1/2. Participants in the class-prime condition ($n = 20$) were asked:

> Please estimate the probability that the warmest day of the week next week (in terms of afternoon high temperature) will fall on a weekday (Mon-Fri) rather than the weekend (Sat-Sun).

This wording was designed to facilitate an ignorance prior of 5/7 (.714).

Figure 1 displays a histogram of the responses. As predicted, responses under the class prime were higher than responses under the case prime. The effect was small but significant among medians (.71 vs. .69, $p < .05$ by Mann-Whitney), and more pronounced among means

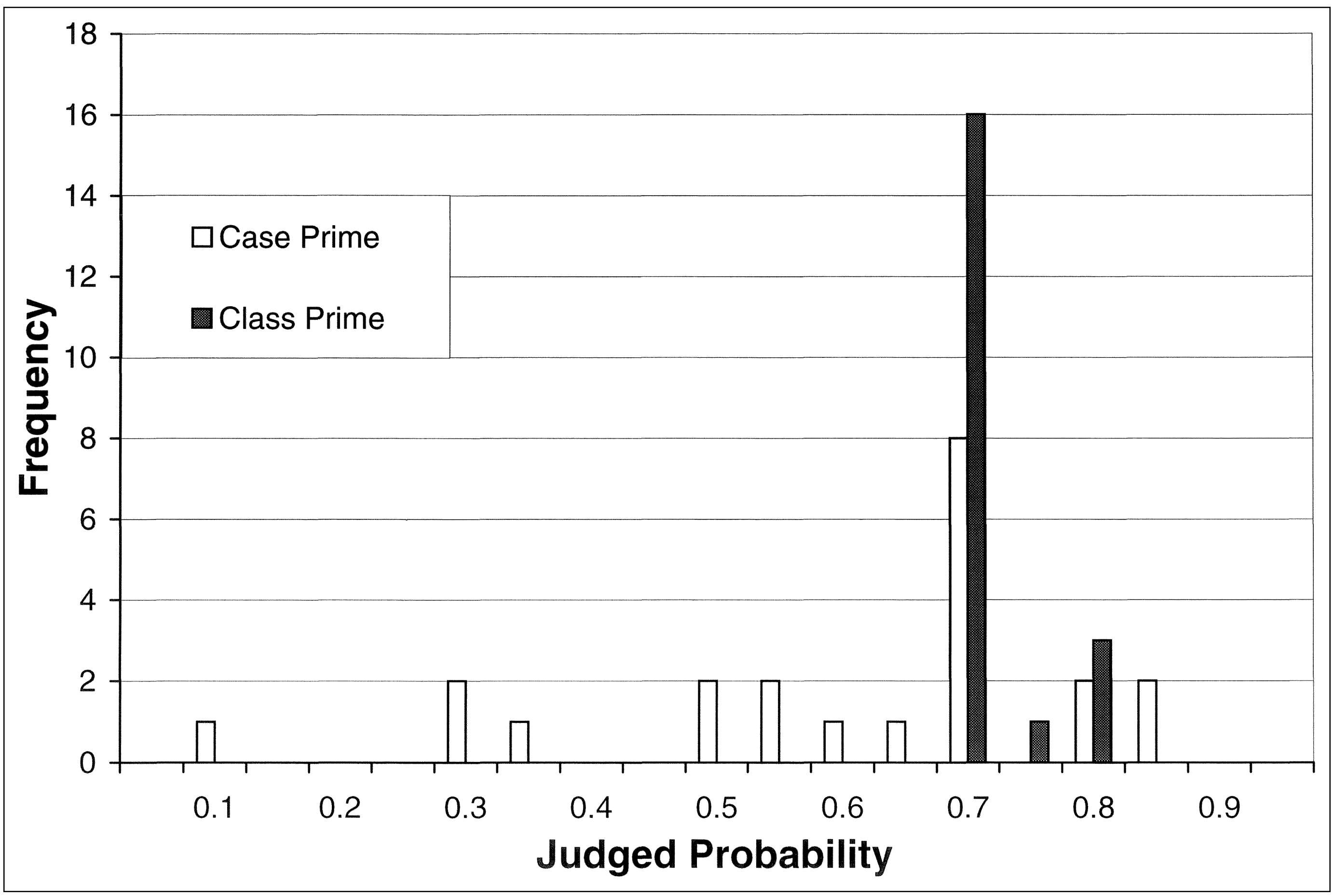

Fig. 1. Distribution of participants' probability judgments in the case-prime and class-prime conditions of Study 1b.

(.72 vs. .61), $t(22) = 2.75$, $p = .01$. Moreover, judgments of 5/7, .71, or .72 were more than twice as common under the class prime than under the case prime (55% vs. 23% of responses), $\chi^2(1, N = 42) = 4.63$, $p < .05$. This replication of the partition-priming effect appears to rule out the possibility that class formulations simply depress probability judgments relative to case formulations.

Studies 1a and 1b demonstrate partition dependence in judgment under ignorance (or near ignorance), situations in which evaluative approaches cannot readily be implemented, so reliance on the ignorance prior should be especially pronounced. In the next two studies, we tested for partition dependence in judgment under uncertainty, situations in which people can apply relevant knowledge and may therefore rely on some combination of evaluative assessment and the ignorance prior.

STUDY 2: PARTITION PRIMING UNDER UNCERTAINTY

For Study 2, we recruited University of Chicago students from an M.B.A. course. They had recently formed groups of between four and six students each for a class project. Participants in the case-prime condition ($n = 20$) estimated the probability of the following event:

> You score higher in this class than any other member of your group.

Participants in the class-prime condition ($n = 19$) estimated the probability of the following event:

> The member of your group who scores highest in this class will be you.

The case prime was designed to facilitate a binary partition,{I score highest; I do not score highest}, yielding an ignorance prior of 1/2. In contrast, the class prime was designed to facilitate an n-fold partition, {Student 1; Student 2; . . . ; Student n}, yielding an ignorance prior between 1/4 and 1/6. Thus, we expected judgments would be higher under the case than the class prime. Indeed, the median judgments were .45 and .25, respectively ($p = .01$ by Mann-Whitney). Of course, the correct probability must be $1/n$ on average. Hence, participants exhibited more pronounced positive illusions (Taylor & Brown, 1988) under the case than the class prime.

Study 2 reveals partition dependence in a situation in which participants could apply relevant background knowledge (concerning their classmates). In Study 3, participants were explicitly provided with information about the target event. In particular, they read excerpts from a letter describing a job applicant, then judged the likelihood that this applicant would be offered a job. We surmise that participants evaluated the extent to which the candidate resembled a "successful applicant." Thus, Study 3 examined judgments that might rely on both the representativeness heuristic and the ignorance prior.

STUDY 3: PARTITION PRIMING AND REPRESENTATIVENESS

In Study 3, University of Chicago undergraduates completed a questionnaire in exchange for $1. Participants were told that ACME Corporation would offer jobs to 10 of 100 applicants, then read excerpts from a recommendation letter that depicted applicant K.T. as cheerful, bright, and hardworking, but somewhat set in her ways.

Case-prime participants ($n = 32$) estimated the probability that "K.T. will be offered a job this year by ACME." This formulation was designed to facilitate a binary case partition, {K.T. offered a job; K.T. not offered a job}, and an ignorance prior of 1/2. Class-prime participants ($n = 43$) estimated the probability that "one of the applicants who will be offered a job by ACME this year is K.T." This formulation was designed to prime the 100-fold class of applicants, of which 10 would be offered a job, yielding an ignorance prior of 1/10 (i.e., 10/100). If participants relied on both the ignorance prior and an assessment of the extent to which K.T. was representative of a successful applicant, judgments would be higher under the case than the class prime.

Results conformed to our prediction. The median judgment was .40 under the case prime but only .23 under the class prime ($p < .05$ by Mann-Whitney). Moreover, judgments of exactly .10 accounted for 28% of responses in the class-prime condition but only 6% of responses in the case-prime condition, $\chi^2(1, N = 75) = 5.67$, $p < .05$.

Our final study tested for partition dependence in decision making. The observation of partition dependence in this domain would be noteworthy for two reasons. First, it would suggest that reliance on ignorance priors is not predicated on the use of a numerical response scale. Second, it would suggest that people are willing to take action on the basis of an ignorance prior.

STUDY 4: PARTITION PRIMING IN DECISION MAKING

The participants in Study 4 were Duke M.B.A. students who were told that some respondents would be selected at random to have their decision honored for real money. All participants were reminded that "the Dow-Jones Industrial Average (DJIA) consists of 30 large industrial stocks, including General Motors (GM) . . . ." Participants in the case-prime condition ($n = 74$) chose between receiving $10 for sure or "$50 if GM's price per share rises by a greater percentage today than any other stock on the DJIA." Participants in the class-prime condition ($n = 70$) chose between receiving $10 for sure or "$50 if the stock whose price per share rises by the greatest percentage on the DJIA today is GM."

If the case prime facilitates an ignorance prior of 1/2 and the class prime facilitates an ignorance prior of 1/30, participants should have perceived the $50 prize to be more likely under the case than the class prime and thus opted for this prospect more often in the case-prime condition. Indeed, participants were more than twice as likely to bet on GM under the case than the class prime (23% vs. 11%), $z = 1.95$, $p < .05$, one-tailed.

DISCUSSION

We hypothesized that in addition to heuristic assessments and other evaluative strategies, people rely on an ignorance prior when estimating probabilities. Reliance on an ignorance prior implies specific patterns of partition dependence, including a systematic discrepancy between judgments made under case and class formulations of the same probability query. We observed the predicted partition dependencies in judgment under ignorance, judgment under uncertainty, and decision making. Thus, it appears that when judging likelihood, people consider not only the nature of relevant events but also the number of events that they think could occur.

Several factors other than the linguistic formulation of a probability query may influence the partition that a judge adopts. We suspect that in many instances people adopt a case partition by default. Although it is always easy to formulate a case partition (the target event either *will* or *will not* occur), it is often difficult to formulate a class partition. One reason that formulating a class partition may be difficult is that many probability queries do not suggest any obvious class of interchangeable events. For instance, consider the query, "what are the chances that you will get cancer by age 40?" Indeed, when Fischhoff and Bruine de Bruin (1999) presented college students with such questions, they observed an "inappropriate blip" in the distribution of judged probabilities at .5. Participants typically explained such responses by noting that the event could either "happen" or "not happen." A second reason why formulating a class partition may be difficult is that even when people recognize a relevant class of interchangeable events, they may be unable to formulate this class. For example, when asked the probability that Princeton will win the Ivy League championship in football, a judge might find it difficult to recall the number of schools in the Ivy League conference.

We next review apparent manifestations of reliance on the ignorance prior in three important judgmental phenomena.

Other Manifestations of Ignorance Priors

Over- and underestimation of observed frequencies

Partition dependence may contribute to the well-documented tendency for people to overestimate proportions smaller than .5 and underestimate proportions larger than .5 (Attneave, 1953; Erlick, 1964; Sheridan & Ferrell, 1974; Wickens, 1992). For instance, Varey, Mellers, and Birnbaum (1990) showed participants a square containing white and black dots; the relative frequency of the two colors was varied, and participants estimated the proportion of dots that were white (or black). Responses were consistent with reliance on a 50/50 ignorance prior implied by a case partition: Participants overestimated proportions smaller than 1/2 and underestimated proportions greater than 1/2.

Interpreting over- and underestimation in terms of partition dependence yields a novel prediction. Consider a square composed of red, white, and blue dots. The question "what percentage of the dots are white" should yield an ignorance prior of 1/3. If over- and underestimation reflect partition dependence, responses should reveal overestimation when the true frequency is below .33 and underestimation when the true frequency is above .33. In general, events whose frequencies lie below the ignorance prior will be overestimated, whereas events whose frequencies lie above the ignorance prior will be underestimated (see See, Fox, & Rottenstreich, 2002; a related analysis is offered by Hollands & Dyre, 2000).

Joint-separate differences and fault trees

Many researchers have observed that the judged probability of mutually exclusive events that are jointly assessed (e.g., "Either Chicago or San Francisco will win the Super Bowl") is typically smaller than the sum of probabilities when these events are judged separately (Rottenstreich & Tversky, 1997). This phenomenon has been replicated in judgments made by doctors (Redelmeier, Koehler, Liberman, & Tversky, 1995), lawyers (Fox & Birke, 2002), and options traders (Fox, Rogers, & Tversky, 1996), and has been attributed to the enhanced availability of constituent events that are singled out and judged separately. Reliance on the ignorance prior implied by case partitions may also contribute to this phenomenon. Consider an extreme example in which judgment relies entirely on the case ignorance prior. In this situation, separate assessments of two hypotheses (e.g., "JSX will go up by at least 100" and "JSX will go down by at least 100") will each equal 1/2, as will the joint assessment of these hypotheses (e.g., "JSX will change by at least 100").

Reliance on ignorance priors implied by different class partitions may similarly explain the so-called pruning bias in studies of *fault trees*. In one study, Fischhoff, Slovic, and Lichtenstein (1978) asked professional mechanics to judge the probabilities that particular factors had caused a car engine not to start. The probability assigned to a catchall category ("all other causes") was lower than the sum of probabilities for these causes when some were explicitly identified and judged separately. This pattern, which has generally been attributed to availability (e.g., Ofir, 2000; Russo & Kolzow, 1994), may also reflect application of the principle of insufficient reason. In a tree with n branches, the ignorance prior for any two events is larger when the events are judged separately (ignorance prior $= 1/n + 1/n$) than when the tree is pruned so that the two events are replaced with a single category that encompasses both (ignorance prior $= 1/(n - 1)$; Fox & Clemen, 2003; see also Fiedler & Armbruster, 1994; Van Schie & Van der Pligt, 1994).

Flawed conditional reasoning

Some instances of flawed conditional reasoning may be explained by partition dependence. For example, suppose that Andy (A), Ben (B), and Chris (C) are three men selected at random. If you learn that Andy is taller than Chris, then what is the probability that Andy is tallest of the three? Most people say 1/2; their reasoning relies on a threefold partition, {A is tallest, B is tallest, C is tallest}, that reflects the fact that initially the three men are equally likely to be tallest. Learning that Andy is taller than Chris eliminates Chris from consideration, apparently leaving two equally likely possibilities. However, the correct answer is 2/3 rather than 1/2. To see why, consider a more refined partition composed of possible orderings of the heights of all three men: {ABC, ACB, BAC, BCA, CAB, CBA}. Under this less intuitive partition, learning that Andy is taller than Chris eliminates the last three orderings, yielding three equally likely possibilities: {ABC, ACB, BAC}. Thus, learning that Andy is taller than Chris leaves two orderings in which Andy is tallest but only one ordering in which Ben is tallest. This insight is transparent under the refined partition but obscured by the naive partition. More generally, flawed conditional reasoning may often stem from reliance on naive partitions that are insufficiently refined (for related arguments, see Bar-Hillel & Falk, 1982, and Johnson-Laird Legrenzi, Girotto, Legrenzi, & Caverni, 1999; for experimental evidence, see Fox & Levav, 2003).

Reliance on Ignorance Priors as an Example of a General Cognitive Strategy

Strategies similar to reliance on an ignorance prior appear outside the domain of likelihood judgment. Harris and Joyce (1980) found that when people were asked to allocate profits among members of a group venture, the most common pattern was to allocate them equally, even though members generated different amounts of revenue. However, when revenues were assigned according to individual contribution and participants were asked instead to allocate expenses among group members, the most common pattern was to allocate expenses equally, even though this left profits unequally distributed. The authors commented that respondents' choices seemed to be motivated by a naive tendency toward equal division with "[little] regard to *what* is being shared" (p. 177). Roch, Lane, Samuelson, Allison, and Dent (2000) investigated individual consumption choices in groups sharing a common resource. They found support for a two-stage model in which group members anchor on equal division and then adjust their choices in a self-serving direction (see also Messick, 1993).

In a similar vein, Samuelson and Zeckhauser (1988, pp. 31–33) found that about half of all Harvard employees divided their retirement funds equally between bonds and stocks. They argued that equal division suggests itself as a basis for investment decisions, in addition to or in place of fundamental concerns (such as growth potential and security) that are almost surely better served by an unequal division. Benartzi and Thaler (2001) found, more generally, that investors often apply a "1/*n* heuristic," dividing their resources equally among the potential investments they are offered (see also Langer & Fox, 2003). In sum, reliance on the ignorance prior may be an instantiation of a more general cognitive strategy by which people allocate a scarce commodity (e.g., probability, shared resources, investment funds) equally among possibilities, and then adjust to the extent that individuating information (e.g., heuristic assessment, self-serving criteria of fairness, knowledge about investments) is available.

Modeling Partition Dependence

The notion that judgment under uncertainty entails reliance on both the ignorance prior and evaluative assessment can be formalized within the framework of support theory (Rottenstreich & Tversky, 1997; Tversky & Koehler, 1994). In support theory, each hypothesis H has a nonnegative support value $s(H)$ corresponding to the strength of evidence for this hypothesis. The probability $P(H_f, H_a)$ that the focal hypothesis H_f (e.g., Sunday is hottest) holds rather than the alternative hypothesis H_a (e.g., Sunday is not hottest) is given by $P(H_f, H_a) = s(H_f)/[s(H_f) + s(H_a)]$. Translating this formula into odds form yields $R(H_f, H_a) \equiv P(H_f, H_a)/[1 - P(H_f, H_a)] = s(H_f)/s(H_a)$. Support arising from the ignorance prior and support generated by evaluative assessment can be distinguished by rewriting the odds form as $R(H_f, H_a) = [n_f/n_a]^{1-\lambda}[s^*(H_f)/s^*(H_a)]^{\lambda}$, with $0 \leq \lambda \leq 1$. Here n_f and n_a are the number of elements in the subjective partition that correspond to the focal and alternative hypotheses, respectively; $s^*(H_f)$ and $s^*(H_a)$ quantify support generated through evaluative assessment; and λ indicates the relative contribution of these two sources of support. As λ approaches 0, judgments converge to the ignorance prior; when $\lambda = 1$, judgments are based entirely on evaluative assessment.

Taking the logarithm of R yields a linear expression in which λ is the weight placed on evaluative assessment and $1 - \lambda$ is the weight placed on the ignorance prior. Future research may use regression analyses to identify factors influencing the relative contributions of these two sources of support (i.e., the parameter λ). For instance, we have suggested that people rely more heavily on the ignorance prior (and less heavily on evaluative assessment) when they have less relevant knowledge than when they have more relevant knowledge. Similarly, they may rely more heavily on the ignorance prior (and less heavily on evaluative assessment) under higher time pressure or cognitive load than under lower time pressure or cognitive load (see Fox & Benson, 2002). In addition, future studies may explore factors determining the nature of the partition adopted by a judge (i.e., the parameters n_f and n_a).

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