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**Working Paper**

**n°: 2014-61-01**

# More prizes are not always more attractive: factors increasing prospective sweepstakes participants' sensitivity to the number of prizes

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June 2013

An ulterior version of this article is forthcoming in *Journal of the Academy of Marketing Science*, ISSN 0309-0566

**Abstract**

Sweepstakes that offer more identical prizes do not necessarily attract more participants. When deciding whether to participate in a sweepstakes presented in isolation (typical case), most consumers cannot evaluate if the number of prizes offered is “good” or “bad” within a certain range (1–10 prizes), because of the low evaluability of this attribute. Therefore, they do not perceive their odds of winning as better with more prizes, nor are they more likely to participate. Four studies detail this process and illustrate which individual and contextual factors (sweepstakes proneness, availability of information about the usual number of prizes for comparable sweepstakes, visual reinforcement of the number of prizes by a consistent number of pictures) increase the evaluability of the number of prizes, which can reduce or suppress magnitude insensitivity. This study in turn provides managerial insights into how to design and advertise efficient sweepstakes.

*Keywords:* Magnitude insensitivity; Evaluability; Sweepstakes; Subjective winning odds

Sweepstakes, which grant participants an opportunity to win prizes through random drawings, are a commonly used sales promotion (Kalra and Shi 2010). Marketers have increased investments in games and sweepstakes in recent years, to reach $1.870 billion in 2009 (Odell 2009). The primary purpose of such tactics is to capture data on participants for direct marketing purposes; other goals might include highlighting a product or service, boosting online or in-store traffic, or building brand image (Blattberg et al. 2008). Organizers thus hope to maximize the number of participants when they design a sweepstakes offer. However, research on the determinants of consumers' decisions to participate in sweepstakes and other promotions, mainly based on uncertainty (Goldsmith and Amir 2010; Jiang et al. 2009; Kalra and Shi 2010; Teichmann et al. 2005; Ward and Hill 1991), remains scarce (Mogelefsky 2000).

Organizers of these sales promotions often offer duplicates of a particular prize (e.g., 3 identical mp3 players, 10 identical DVDs) which allegedly enhance sweepstakes attractiveness, such that the organizers make this point as salient as possible in associated advertisements (Feinman et al. 1986). However, no research confirms the premise required to support this practice, namely, that consumers are actually sensitive to the number of prizes available when they make entry decisions. This research seeks to determine whether, if all other sweepstakes characteristics are equal, participation likelihood increases with the number of identical prizes offered by a sweepstakes.

The contributions of this study are threefold. First, we show that the assumption that more prizes is better is incorrect. Potential participants are sensitive only to large variations in the number of identical prizes (e.g., from 1 to 100 or 1000 prizes); they do not perceive higher chances of winning nor are they more likely to participate if 10 prizes are at stake rather than only 1. This finding contributes to literature on magnitude insensitivity by showing that it can affect probability estimations (subjective probability of winning) and thus intentions to participate in a sweepstakes.

Second, we demonstrate that this type of insensitivity results from the low evaluability of the number of prizes. A variable is evaluable if people can assess whether a specific level is "good" or "bad," even when it is presented in isolation (Hsee and Zhang 2010). For sweepstakes, the attractiveness of a specific number of prizes (3 MP3 players vs. 1 or 10) is difficult to evaluate in isolation (i.e., not in comparison with another sweepstakes that offers another number of prizes), which is the typical situation. Magnitude insensitivity results (Hsee et al. 2005), at least for moderate variations (e.g., from 2 to 12), which are common in real-life sweepstakes.

Third, we empirically highlight the link between lack of evaluability and magnitude insensitivity by identifying three factors that can improve the evaluability of the number of prizes and thus suppress magnitude insensitivity. The first two factors pertain to the amount of knowledge consumers have about the distributional characteristics of the number of prizes in sweepstakes. Specifically, magnitude insensitivity disappears for consumers who are more familiar with sweepstakes or who receive examples of similar sweepstakes before making their entry decision. The third factor is the visual presentation of the number of prizes in the sweepstakes advertisement. Consumers' estimates of their odds of winning and their participation in sweepstakes become sensitive to even smaller variations in the number of prizes when this number is visually stressed by the same number of pictures.

This article is organized as follows: We develop our conceptual background to derive our hypotheses before describing four studies. After summarizing the findings from these studies, we detail our contributions to literature and offer some managerial implications for designing better sweepstakes and improving recruitment of targeted participants.

## Conceptual background and hypotheses

Existing research on promotional games suggests that both the dotation structure and the expected probability of winning affect the success of a campaign (e.g., Kalra and Shi 2010; Shapira and Venezia 1992; Ward and Hill 1991). Most empirical work examines variations in the dotation structures and how participants trade off across the number of prizes and their unit value (i.e., whether potential participants prefer a sweepstakes offering one grand prize or several lesser value prizes). The methodologies often ask the respondents to compare different sweepstakes, a fairly uncommon situation in real life. No research on consumers' decisions to participate in promotional games specifically tests their sensitivity to variations in the number of identical prizes in a more realistic setting in which consumers consider a sweepstakes in isolation, described by an advertisement. In such a situation, we hypothesize that potential participants suffer from the low evaluability of the number of prizes offered by the sweepstakes, which prompts magnitude insensitivity.

Magnitude insensitivity describes how, in some conditions, the subjective valuation of a stimulus does not follow a linearly increasing function of the stimulus magnitude (Hsee et al. 2005). For example, when three groups of people indicated how much they would be willing to pay to save 2,000, 20,000, or 200,000 migratory birds from dying in uncovered oil ponds every year, they answered, respectively, \$80, \$78, and \$88 (Desvousges et al. 1993; see also Fetherstonhaugh et al. 1997). According to previous research, magnitude insensitivity affects evaluations of various attributes, including the scope of an event or outcome (e.g., Desvousges et al. 1993; Kogut and Ritov 2005), duration of an experience (e.g., Fredrickson and Kahneman 1993; Kahneman et al. 1993), preference reversal between joint and separate evaluations (e.g., Gonzalez-Vallejo and Moran 2001; Hsee et al. 1999), affective misprediction (Hsee and Zhang 2004), and happiness (Hsee et al. 2009). These instances of valuation insensitivity in turn influence product choices (Yeung and Soman 2005), willingness to donate to charities (Desvousges et al. 1993; Kogut and Ritov 2005), choices of doctors (Zikmund-Fisher et al. 2004) or job candidates (Hsee 1996), motivation to complete a task (Cryder et al. 2008), and bidding behaviors (List 2002). For sweepstakes, potential participants probably do not evaluate a 10-prize offer as 10 times more attractive than a 1-prize offer, all else being equal.

Magnitude insensitivity might be due to the low evaluability of the target attribute (Hsee and Zhang 2010). Evaluability refers to the extent to which a person has relevant reference information to gauge the desirability of the target attribute values and map them onto valuation. Such judgments are possible when people can bring to mind the variable's range, average value, or other reference information. According to general evaluability theory (Hsee and Zhang 2010), greater evaluability engenders greater magnitude sensitivity. Thus, one tourist evaluating a 10-carat jade and another tourist evaluating separately a 15-carat jade may price both jewels equally, if they know nothing about jade jewelry (e.g., typical worth of a given weight). However, with some expertise, they should value the 15-carat stone as more expensive than the 10-carat stone. In our case, these findings imply that people with limited knowledge of sweepstakes may not be able to take into account the magnitude difference between 1 and 10 prizes, because they cannot judge in isolation whether these are attractive numbers of prizes. As such, a greater number of identical prizes may not translate into higher subjective odds of winning or greater willingness to enter.

To contribute to evaluability theory, we investigate factors that might improve the evaluability of an attribute, even when judged in isolation. Specifically, we explore conditions in which potential participants in a sweepstakes value an increase in the number of prizes, even if that increase is moderate, and thus become more likely to enter. When judging an attribute's level in isolation, the nature of the attribute and knowledge are two determinants of evaluability (Hsee and Zhang 2010).

Unlike factors such as temperature, amount of sleep, or connectedness with others, which are inherently evaluable because humans have innate, stable, physiological or psychological reference systems to evaluate them, the number of prizes presented in a sweepstakes advertisement does not offer a strong reference. Instead, it requires external knowledge, which implies distributional information about the target attribute that has been acquired through learning. The knowledge hypothesis states that evaluators should have more reference information about an attribute if they have rich knowledge about it. Richer knowledge seemingly should engender higher evaluability and greater value sensitivity. However, evidence for the link between knowledge and evaluability has been established only for duration valuation (Ariely and Loewenstein 2000; Morewedge et al. 2009; Yeung and Soman 2007). For example, people are generally insensitive to the duration of an event when they evaluate it in isolation, but they become more sensitive to the duration of familiar stimuli, such as an often-traveled commuter route or a noise identified as a telephone ring (Morewedge et al. 2009). We test the knowledge–evaluability link for a different kind of stimulus (i.e., number of identical prizes in sweepstakes) and thereby seek to generalize the impact of knowledge on magnitude sensitivity. If low evaluability is responsible for consumers' lack of sensitivity to the number of prizes that can be won in a sweepstakes, this lack should be less pronounced among people who are familiar with sweepstakes. Therefore,

> **H1.** When prospective participants judge a sweepstakes in isolation, consumer insensitivity to the number of prizes decreases with knowledge about sweepstakes.

A given attribute also can be difficult to evaluate within a certain limited range but easier to evaluate over an extremely broad range; for example, Hsee (2000) hypothesizes that the appeal of 10,000 entries for a music dictionary are hard to evaluate, but 50 entries clearly are insufficient. In a similar vein, an extremely large number of identical prizes offered by a single sweepstakes (e.g., 1000 prizes) may be interpreted as a good offer even without much expertise in sweepstakes, such that insensitivity to the number of prizes is likely to disappear beyond a certain threshold. This reasoning leads to the following hypothesis:

> **H2**: When prospective participants judge a sweepstakes in isolation, sensitivity to the number of prizes occurs for variations of this number above a certain threshold.

Potential participants' knowledge or familiarity can serve as a basis for marketers to target the offer more effectively. However, practitioners also need to know how to design a sweepstakes offer so that a "sweepstakes novice" is sensitive to the number of prizes. Existing research offers few insights into how to increase the evaluability of an inherently inevaluable attribute (e.g., number of prizes) for people who do not have specific knowledge about the attribute's reference value. Some literature suggests that reinforcing quantity information with a consistent number of pictures can make people more sensitive to the magnitude of this number. For example, consumers tend to use the number of product units displayed on a package as a visual anchor in their quantity judgment and thus perceive packages displaying more product units (e.g., 7 vs. 4 cookies, 15 vs. 3 pretzels) as offering higher product quantity (Madzharov and Block 2010). In that study, the researchers manipulated two packaging versions in a between-subjects design, such that two groups of respondents evaluated them separately. Accordingly, a consistent number of pictures illustrating the number of prizes could improve sensitivity to that number. Hockley (2008) also finds that people remember pictures better than words in tests of recall and item recognition. Prior research attributes this picture superiority effect to (1) encoding, such that pictures get encoded in both verbal and image representations (Paivio 1976); (2) the greater distinctiveness of the image code compared with the verbal code (Mintzer and Snodgrass 1999); and (3) the benefits of more elaborate processing for pictures (Craik and Lockhart 1972). Thus, pictorial depictions of a number should make an attribute more evaluable when it is inherently inevaluable and judged in isolation, such as the number of prizes. Formally:

**H3.** When prospective participants judge a sweepstakes in isolation, sensitivity to the number of prizes increases when the advertisement features a consistent number of pictures.

We test these evaluability accounts for magnitude insensitivity in Studies 1 and 2. Both studies investigate the boundary role of knowledge (H1), operationalized in two ways. In Study 1, we use individual differences in sweepstakes proneness as a proxy for familiarity with this type of sales promotion. In Study 2, we manipulate knowledge by providing information about the distributional characteristics of the number of prizes in comparable sweepstakes. Then with Study 3 we test H2 by extending the manipulated range of the number of prizes to identify possible threshold effects. Finally, with Study 4, we study the impact of visual displays of prizes in an advertisement. Study 4a refers to the boundary conditions associated with featuring a consistent number of pictures to attenuate insensitivity to the subjective likelihood of winning (H3), whereas Study 4b investigates insensitivity to the number of prizes in an actual sweepstakes and replicates our findings regarding the moderating influence of the number of pictures.

**Study 1**

With Study 1 we aim to confirm that people are insensitive to the number of prizes when they judge this value in isolation, as is often the case in real life. We also test whether this insensitivity is stronger for people with less knowledge of sweepstakes than for those who have more knowledge (H1). We assume that greater familiarity with sweepstakes increases consumers' knowledge of them. To assess familiarity with sweepstakes, we measure an individual trait, sweepstakes proneness, with a scale adapted from Lichtenstein et al. (1995) that refers to the general tendency to take advantage of sweepstakes when shopping and enjoy them. If magnitude insensitivity results from the low inherent evaluability of the number of prizes, people who are more familiar with this type of sales promotion should be more sensitive to variations in the number of prizes, because they have been exposed to other instances of comparable sweepstakes in the past. This prior access should provide reference points that help potential participants judge the number of prizes as good or bad. Similarly, research has shown that individual familiarity affects the valuation of duration. For example, Yeung and Soman (2005) show that when people evaluate a physical training program, those who never worked out were less sensitive to its duration than those who worked out more regularly. These authors explain this effect by arguing that more experienced people evaluate duration more easily. Thus, people with high sweepstakes proneness should be more sensitive to variations of the number of prizes than people characterized by low sweepstakes proneness.

Procedure

Fifty-seven respondents were recruited through Amazon Mechanical Turk platform (see Paolacci et al. 2010) and paid US$5 in exchange for their participation. Participants were told they had the opportunity to enter a sweepstakes described in an advertisement. The advertisement announced: "Answer a survey about movies and get a chance to win a $5 Amazon.com gift card!" Respondents were randomly assigned to two conditions. In the low prize magnitude condition, the advertisement indicated that 2 gift cards could be won; in the high prize magnitude condition, 12 gift cards were at stake. The scenario then explained that the winners would be randomly drawn among those who answered the survey. The main dependent variable was the subjective likelihood of winning if respondents were to enter the sweepstakes. The question read: "If you enter this sweepstakes, what do you believe your chance of winning is?" The respondents then moved a slider on a 100-point visual analog scale from 1 ("absolutely no chance") to 100 ("a good chance"). Sweepstakes proneness was measured with a six-item, seven-point, Likert-type scale adapted from Lichtenstein et al. (1995)—for example, "I feel compelled to respond to sweepstakes offers," "I have favorite brands, but if possible, I buy the brand that is connected with a sweepstakes," and "I enjoy entering manufacturers' sweepstakes." The arithmetic average of the six items provides an individual measure of sweepstakes proneness (Cronbach's alpha = .87, M = 3.36, SD = 1.25). Finally, to measure of evaluability, participants judged their own capacity to evaluate the number of prizes offered on a seven-point scale: "Do you have any idea if [number of winners in the condition: 2 or 12 winners] is a high or low number of winners for this kind of sweepstakes?" (1 = "I don't have any idea," 7 = "I have a very good idea").

Results

*Subjective Likelihood of Winning*. To analyze the reports of subjective chances of winning, we used a univariate analysis of variance (ANOVA), with the number of prizes as a factor, sweepstakes proneness as a covariate, and their interaction. As expected, the number of Amazon gift cards did not significantly affect the perceived chances of winning ($F(1,53)$ = .73, *NS*). Sweepstakes proneness exerted a main, positive effect on estimated chances ($F(1,53) = 11.94$, $p < .01$). A significant interaction emerged between sweepstakes proneness and the magnitude of the number of prizes ($F(1, 53) = 5.25$, $p < .05$). Spotlight analyses at one standard deviation above and below the mean of sweepstakes proneness confirmed the pattern of results we predicted in H1. For people with low sweepstakes proneness (one standard deviation below the mean), the number of prizes had no significant effect on the estimated chances of winning ($M_{2prizes} = 7.91$, $M_{12prizes} = 15.08$; $\beta = .72$, SE = .73, t = .98, *NS*). However, for people who were prone to entering sweepstakes, a similar spotlight analysis at one standard deviation above the mean revealed a significant difference between the two prize conditions, such that the subjective likelihood of winning was higher for 12 than for 2 prizes ($M_{2prizes} = 13.93$, $M_{12prizes} = 44.72$; $\beta = 3.08$, SE = .08, t = 4.50, $p < .001$; see Figure 1). We also used the Johnson-Neyman technique to identify the range of sweepstakes proneness scores for which the simple effect of the number of prizes was significant (Spiller et al.

2013). Respondents with a sweepstakes proneness score greater than 2.62 were sensitive to the number of prizes when estimating their chances of winning ($\beta = 1.19$, SE = .59, t = 2.01, $p = .05$), whereas those with sweepstakes proneness scores lower than 2.62 were not.

(Insert Figure 1 about here)

*Moderated Mediation through Evaluability*. When we regressed evaluability on sweepstakes proneness, the number of prizes, and the corresponding two-way interaction, the results revealed that only sweepstakes proneness had a significant, positive effect on evaluability ($F(1, 53) = 7.58$, $p < .01$; all other Fs < 1, *NS*). That is, the more familiar respondents were with sweepstakes, the easier it was for them to evaluate the number of identical prizes to win. We then tested the indirect effect of sweepstakes proneness, through evaluability, on the predicted subjective likelihood of winning for the 2- and 12-prize conditions separately (Preacher et al. 2007, Model 3). The indirect effect was significant in both cases. When only 2 prizes were available, the indirect effect of sweepstakes proneness on subjective likelihood was negative (bootstrap bias corrected and accelerated 95% confidence interval [CI] range between –.9043 and –.0726); the indirect effect was positive when 12 prizes were at stake (bootstrap bias corrected and accelerated 95% CI range between .0455 and 7.0060). Therefore, when only 2 gift cards could be won, the effect of sweepstakes proneness on the subjective likelihood of winning was negative and mediated by evaluability: People prone to enter sweepstakes in general judged 2 prizes as a low number and consequently perceived the offer more negatively than people less familiar with sweepstakes. Conversely, when 12 gift cards could be won, highly sweepstakes-prone people judged it as a good offer and estimated their chances of winning more positively than others.

Discussion

When judging a sweepstakes in isolation, only people prone to enter sweepstakes are sensitive to variations in the number of prizes. The low evaluability of the number of prizes likely explains magnitude insensitivity. Evaluability mediates the impact of sweepstakes proneness on sensitivity to variations of the number of prizes. Specifically, sweepstakes proneness increases the evaluability of the number of prizes, a value that respondents then take into account when assessing the likelihood of winning.

Although this finding offers preliminary evidence that knowledge about the distributional characteristics of the number of prizes in sweepstakes improves magnitude sensitivity (Hypothesis 1), this proof relies on a measured individual difference. Study 2 further tests H1 by actually manipulating the amount of information people have on hand when judging a sweepstakes offer.

**Study 2**

To provide more direct evidence of the impact of knowledge and evaluability on magnitude sensitivity, we experimentally manipulated respondents' knowledge about sweepstakes—specifically, knowledge about the usual range in the number of prizes offered—in Study 2. More knowledge should make this number more evaluable and improve consumers' magnitude sensitivity, even when consumers judge a sweepstakes in isolation.

Procedure

One hundred fourteen undergraduate students from a large northeastern U.S. university took part in the study, which took place in an experimental lab. They were randomly assigned to one of four conditions in a 2 (evaluability: low vs. high) × 2 (number of winners: two vs. eight) between-subject design.

The evaluability factor was manipulated in the first part of the study. Respondents read the following introduction: "Sweepstakes are a common promotional practice, in which winners are designated through a random drawing. They may require the participants to visit a store, a website and to give some personal information in order to enter the drawing. We would like to have your opinion on a series of sweepstakes. These are representative of the variety of offers that you can encounter in real life for sweepstakes offering average-value prizes." Next, the experiment described five sweepstakes, including the type of brand, the type of prizes, and the requirements to enter. For each sweepstakes, respondents considered questions such as, "Is the type of prize consistent with the organizer?" and "How demanding are the requirements to enter the sweepstakes?" (for an example, see Appendix A). In the high evaluability condition, each sweepstakes description included the precise number of rewarded winners: 6 winners for Sweepstakes 1, 4 for Sweepstakes 2, 5 for Sweepstakes 3, 1 for Sweepstakes 4, and 10 for Sweepstakes 5. One of the questions also addressed the number of winners to reinforce the manipulation: "What do you think about the number of winners?" In the high evaluability condition, participants received information about the usual number of winners in sweepstakes offering average-value prizes (e.g., a 100 ml bottle of fragrance, an iPod Nano): The number of winners ranged from 1 to 10, with an average of 5. In the low evaluability condition, the same sweepstakes were presented, but the exact number of winners was not specified in the description.

After reviewing the five sweepstakes, all respondents answered questions about their personal reactions to the final promotional offer (i.e., the target sweepstakes). This target scenario asked them to imagine that during their last visit to a movie rental store, they were invited to visit its website, where they could enter a sweepstakes by ranking their favorite movies and giving their e-mail address. The number of winners was manipulated between subjects: The store rewarded either two or eight winners with the complete series of their favorite television show. The two-winner condition resided in the lower range of values to which participants in the high evaluability condition had been exposed, and the eight-winner condition was in the upper range. Consequently, in the high evaluability condition, people should estimate their chances of winning to be lower when the target sweepstakes rewards two winners than when it rewards eight winners. In other words, people in the high evaluability condition should be sensitive to the magnitude of the number of prizes (or winners) when they evaluate their subjective likelihood of winning; in contrast, people in the low evaluability condition should be magnitude insensitive (H1). As in Study 1, after reading the scenario for the target sweepstakes, respondents estimated their chances of winning on a visual analog scale from "absolutely no chance" to "a good chance."

In the last part of the study, to check the manipulation of evaluability, participants answered the same item as in Study 1—"Do you have any idea if [number of winners in the condition: 2 or 8 winners] is a high or low number for a sweepstakes offering average-value prizes?"—on a seven-point scale from "I don't have any idea" to "I have a very good idea."

Results

*Manipulation Check.* Providing the number of winners for the five sweepstakes increased the evaluability of the number of winners in the target sweepstakes ($M_{no\_information}$ = 3.74, SD = 1.86, $M_{info}$ = 4.43, SD = 1.90; F(1, 110) = 3.85, *p* = .05). The two-winner condition also appeared more evaluable than the eight-winner one ($M_{2winners}$ = 4.51, SD = 1.86, $M_{8winners}$ = 3.66, SD = 1.87; F(1, 110) = 5.99, *p* = .02). The interaction between the two factors was not significant (F(1, 110) = .67, *NS*). Thus, the manipulation of the amount of information about the number of prizes in the five sweepstakes had the intended effect on the evaluability of the number of prizes in the target sweepstakes.

*Subjective Likelihood of Winning.* Two respondents did not answer this question, so the following analyses were performed on 112 remaining observations. A univariate ANOVA included the number of prizes and evaluability as discrete between-subjects factors and their interaction. Both factors indicated no significant main effects (all Fs < 2), though a marginally significant interaction emerged (F(1, 108) = 2.98, *p* = .087). Figure 2 contains the corresponding means. In the low evaluability condition, participants did not perceive a higher chance of winning when eight winners were to be rewarded rather than two ($M_{2prizes}$ = 37.72, SD = 33.00; $M_{8prizes}$ = 32.86, SD = 20.12; F(1, 108) = .41, *NS*). In contrast, in the high evaluability condition, people believed they had a marginally higher likelihood of winning when there were eight winners rather than two ($M_{2prizes}$ = 27.57, SD = 20.80; $M_{8prizes}$ = 40.93, SD = 32.00; F(1, 108) = 3.39, *p* = .068).[1]

(Insert Figure 2 about here)

Discussion

When consumers can rely on information about the distributional characteristics of the number of winners for comparable sweepstakes, they infer that they have a greater likelihood of winning when there are more prizes at stake, even if they assess the offer in isolation. Studies 1 and 2 thus provide convergent results regarding the boundary role of knowledge on magnitude insensitivity with two different assessments of knowledge (individual differences in familiarity with sweepstakes and availability of distributional information) and support H1.

**Study 3**

According to H2, when prospective participants judge sweepstakes in isolation, more prizes should lead them to estimate they are more likely to win if that increase is very large. In Studies 1 and 2, the range in the number of prizes was comparable to real-world sweepstakes (2 vs.12 and 2 vs.8). With Study 3, we investigate the presence of a boundary condition by considerably extending that range, with four experimental conditions denoting 1 prize, 10 prizes (similar to the ranges in Studies 1 and 2), 100 prizes, and 1000 prizes. Consistent with H2, we expect a replication of the previously observed magnitude insensitivity for moderate variations in the number of prizes (1 vs.10 prizes) but magnitude sensitivity for much larger variations (1 or 10 prizes versus 100 or 1000 prizes).

In addition, with Study 3 we seek to rule out an alternative explanation for magnitude insensitivity. The objective, mathematical probability of winning a prize depends on both the number of prizes and the number of entrants. A possible alternative explanation for magnitude insensitivity could be that prospective participants believe that lotteries with more prizes attract more entrants. If so, respondents' estimated probability of winning may not vary with the number of prizes—not because people are magnitude insensitive but rather because respondents assume that the number of participants will increase accordingly. The increase of the estimated number of participants may cancel out the increase in the number of prizes, resulting in no variation of the estimated probability. To test this alternative explanation, we asked respondents to estimate the number of people who would enter the sweepstakes, using an open question.

Procedure

One hundred seventeen MBA students in a European business school answered the paper-and-pencil questionnaire in class. The scenario asked them to imagine that, while they were browsing a music website featuring news, reviews, and interviews pertaining to various kinds of music, they found an advertisement for a sweepstakes. The ad, featured in the questionnaire, read "Participate to the Music-News.com lottery and maybe listen to your favorite songs on the new iPod Nano." Participants were randomly assigned to one of four versions of the advertisement, in which 1, 10, 100, or 1000 iPods Nano were available to win. To draw people's attention on this number, the questionnaire made it salient with a bold, large font and star outline. Respondents then indicated their estimated chances of winning on the visual analog scale developed by Woloshin and colleagues (2000) to measure their perceptions of event probabilities. We used this scale, rather than the one we used in Studies 1 and 2, to test if magnitude insensitivity to moderate variations of the number of prizes was robust to different measure instruments. The scale featured a magnifying glass to represent probabilities of 0–10% on a logarithmic scale (see Appendix B). Respondents then estimated the number of participants in the sweepstakes in an open-ended question.

Results

*Subjective Likelihood of Winning*. Two participants did not answer this question. Answers on the visual analog scale with the magnifying glass were interpolated to obtain the probability measures. The estimates of the probabilities of winning followed a log-normal distribution (Dehaene 1997), so we performed analyses on the log values Y of the estimates.[2] The average expected probabilities of winning in each condition are represented in Figure 3. The ANOVA revealed that the number of iPods to win had a significant main effect on the estimated chances of winning ($F(3,111) = 3.18$; $p < .05$). Consistent with Studies 1 and 2, the subjective likelihood of winning did not differ significantly between 1 and 10 iPods ($M_1 = -8.53$, or .019% when the reverse transformation $e^Y$ was performed, SD = 2.91; $M_{10} = -9.05$, or .011%, SD = 2.85; t = -.71, *NS*).

We then compared the average expected probability of winning for 1 and 10 prizes with the expected chances, respectively, for 100 (contrast 1, coefficients: -.5, -.5, 1, 0) and 1000 (contrast 2, coefficients: -.5, -.5, 0, 1) iPods. The first contrast was marginally significant ($M_{100} = -7.60$, corresponding to .050%, SD = 2.41, t = 1.87, $p = .064$) and the second contrast was significant ($M_{1000} = -6.97$, corresponding to .094%, SD = 2.93, t = 2.87, $p < .01$). The subjective likelihood of winning did not differ significantly between the 100 and 1000 prize conditions (t = .84, *NS*). Comparing the average estimate of 1 and 10 prizes with the average estimate of 100 and 1000 prizes revealed a significant increase in the latter (contrast 3, coefficients: -.5, -.5, .5, .5, t = 2.90, $p < .01$). Consistent with H2, participants' estimation of the chances of winning became sensitive to the number of prizes at larger variations.

(Insert Figure 3 about here)

*Estimated Number of Participants.* Ten respondents did not answer this question. The estimates for the total number of participants followed a lognormal distribution (Dehaene 1997), so we performed the analyses on the log values of the estimates.[3] The ANOVA revealed no significant impact of the number of prizes on the estimated number of participants ($F(3,103) = 1.57$, *NS*).[4]

Discussion

Study 3 confirmed H2: When judging a sweepstakes in isolation, the sensitivity of prospective participants to a greater number of prizes featured threshold effects. We replicated magnitude insensitivity for an increase from 1 to 10 prizes, but larger increases to 100 or 1000 prizes resulted in higher perceived chances of winning. Furthermore, magnitude insensitivity did not seem to result from rational inferences about the number of participants.

**Study 4**

In Study 4 we consider a boundary condition, such that magnitude insensitivity might disappear when a consistent number of pictures reinforces the number of prizes to be won (H3). Neither evaluability nor magnitude sensitivity literature has investigated visual reinforcement at the attribute level, yet in practice, the number of prizes easily could be reinforced by the same number of identical pictures. For example, the actual ad in Appendix C displays three identical pictures of the prize car; the sweepstakes could have advertised just one picture of that car though. Thus, Study 4 tests whether reinforcing the information about the number of prizes with a consistent number of pictures makes this number more evaluable and improves magnitude sensitivity. Specifically, in Study 4a we examine if visual reinforcement moderates sensitivity of people's subjective odds of winning to variations in the number of prizes. Study 4b replicates this result and measures actual participation, to establish whether sensitivity to the number of prizes has a direct impact on the number of people enrolling in the sweepstakes.

Study 4a

*Method.* One hundred eight undergraduate students of a European business school participated in exchange for partial course credit. They were told to imagine that a website devoted to current cultural events was organizing a sweepstakes with iPod shuffles as prizes (unitary value: 79€). Participation required answering a few questions related to their opinions about the main cultural events in the past year, in a category chosen by the participant (e.g., movies, books, music, shows). The scenario explained that the survey took approximately 6 minutes and included an advertisement for the sweepstakes. Two factors were manipulated within the advertisement. The first factor was the number of prizes: 2 iPod shuffles in one condition versus 12 in the other. The number of prizes was given in digits. The second factor was the number of pictures of iPod shuffles included in the advertisement: In the first condition, the ad featured only one picture of an iPod, whereas in the second, the ad featured as many iPod pictures as there were iPods to win (2 or 12). Respondents were randomly assigned to one of the four conditions in a 2 (number of iPods: 2 vs. 12) × 2 (1 picture vs. as many pictures as iPods to win) between-subject design. After reading the scenario, respondents estimated their likelihood of winning in response to an open-ended question.

*Results: Subjective Likelihood of Winning.* To perform Gaussian tests, we used the transformation recommended by Tukey (1977). To handle answers equal to 0, we added a small constant (c = .3) to every probability estimate before computing the logarithm.[5]

A univariate ANOVA included the number of iPods and the number of pictures as discrete between-subject factors and their interaction. The display of a single or several images had no main effect on the estimated probability ($F(1, 104) = .46$, *NS*), nor did the number of iPods ($F(1, 104) = 2.61$, *NS*). Replicating our previous results, without visual reinforcement of the number of prizes (i.e., the number of prizes varied from 2 to 12 but the display showed a single iPod in both cases), respondents' probability of winning did not vary with the number of prizes ($M_{2iPods} = -.18$, corresponding to .53% when the reverse transformation $e^{Y}-.3$ was applied; $M_{12ipods} = -.19$, corresponding to .53%; $F(1, 104) = .001$, NS). In contrast, though in line with H3, a visual reinforcement of the number of prizes led participants to estimate that they had a higher chance of winning when there were 12 rather than only 2 prizes ($M_{2iPods}$ = -.39, corresponding to .38%, SD = .81; $M_{12ipods}$ = .31, corresponding to 1.06%, SD = 1.30; $F(1, 104) = 5.76$, $p < .05$; interaction $F(1, 104) = 2.78$, $p < .1$; see Figure 4).

(Insert Figure 4 about here)

*Discussion*. Study 4a supports H3 by revealing that the visual display of multiple pictures corresponding to multiple prizes improves magnitude sensitivity to probability estimates. Thus, the visual representation of an attribute level may enhance its evaluability. This finding provides managerial insights into how the mere visual design of a sweepstakes advertisement can affect potential participants' valuation of the prizes at stake.

Study 4b

By analyzing actual participation in a sweepstakes, with Study 4b we aim to replicate Study 4a by showing again how magnitude insensitivity disappears when the number of pictures equals the number of prizes to be won (H3). The participation rate should not increase when we increase the number of prizes without illustrating this variation visually, but it should increase when we display as many pictures as there are prizes to be won.

*Procedure*. One hundred twenty-five respondents were recruited through Amazon Mechanical Turk and paid US$.5 for their participation. The sweepstakes was similar to that described in Study 1: Participation required answering a survey about movies for a chance to win a $5 Amazon.com gift card. The explanations made it clear that participation was not compulsory and that the opportunity to enter the sweepstakes came on top of the normal payment for the study. The number of prizes and their visual presentation were manipulated between subjects. For the first factor, either 2 or 12 gifts cards could be won. This number appeared in digits. In the visual reinforcement condition, the advertisement featured a consistent number of pictures of gift cards (2 or 12); one gift card was showcased in the no reinforcement condition. Participants then were informed that the winners would be randomly drawn among participants who had answered the survey about movies. As in a real sweepstakes, they were then given the choice to enter for a chance to win the gift card. Those who decided to enter answered a short questionnaire about their movies tastes, such as their favorite movie genre or favorite actress and actor. One week after the study, 12 winners, among all the participants who had answered the movie questionnaire, were randomly chosen and received a $5 gift card by e-mail.

*Results*. Figure 5 reports the percentage of respondents who entered the sweepstakes for each experimental condition. The results reconfirm H3. When the number of prizes to win was reinforced with a consistent number of pictures, a higher percentage of people entered the sweepstakes with 12 prizes (73.5%) than with 2 prizes (48.0%; $\chi^2(1, N = 59) = 4.02$, $p < .05$). However when the number of gift cards was not reinforced by the same number of pictures, the entry rate did not significantly differ between the prize conditions (82.1% vs. 81.6%; $\chi^2(1, N = 66) = .003$, *NS*).

(Insert Figure 5 about here)

*Discussion*. In line with H3, Study 4 shows that the mere visual reinforcement of the number of identical prizes at stake in a sweepstakes is sufficient for potential participants to become sensitive to variations in this number, even when they judge the offer in isolation. This new boundary condition for magnitude insensitivity affects both estimated chances of winning and actual participation.

Studies 4a and 4b provide consistent evidence regarding the boundary role of visual display on magnitude insensitivity, but the patterns of results differed between the estimated probability of winning that we probed in Study 4a and the actual participation rate observed in Study 4b. As we show in Figure 4, when there are 12 prizes to win, the visual reinforcement by 12 pictures increases the expected probability of winning compared with the condition featuring only 1 picture. When 2 prizes are offered, featuring 2 pictures only slightly decreases the estimated probability of winning. In Figure 5 we illustrate instead how the same visual manipulation slightly decreases participation when 12 prizes are offered and strongly decreases it when 2 prizes can be won. This discrepancy might suggest that the sensitivity of estimated probabilities of winning to variations of the number of prizes determines how much weight the estimates will have in the decision to participate. The equally high participation, whether 2 or 12 prizes could be won in the low evaluability (one picture) condition, might indicate that participants do not take their chances of winning into account and base their decision on other sweepstakes characteristics, such as the value of the prize or the participation requirements. However, the drop in participation in the 2-prize setting in the high evaluability condition implies that chances of winning is a factor that influences participation decisions and that two prizes do not provide a very good signal. We elaborate further on the relationship between evaluability and the attribute's relative importance for a decision in the General Discussion section. This question also offers an important avenue for further research that seeks to understand how consumers make the decision to participate or not in sweepstakes.

## General discussion

Although greater numbers of identical prizes is generally thought to have positive influences on the perceived attractiveness of sweepstakes, in many cases, increasing the number of identical prizes (i.e., number of winners) does not change consumers' perceived likelihood of winning or intentions to participate. Only very large variations in the number of prizes increase the perceived chances of winning, which cannot be explained by inferences about the number of participants. People's judgments display magnitude insensitivity because the number of prizes at stake in a given sweepstakes is not easily evaluable; that is, it is difficult to interpret this number as good or bad when judged in isolation rather than in comparison with other offers. Such magnitude insensitivity disappears when people have some knowledge about sweepstakes. Thus, people highly prone to participate in sweepstakes are more sensitive to variations in the number of prizes than people less prone to enter. In the same vein, providing potential participants with distributional characteristics for the number of winners improves magnitude sensitivity. The way the information is communicated in the advertisement also moderates sensitivity to the number of prizes, such that visual reinforcement of the numerical information with a consistent number of prizes helps make consumers more sensitive to this attribute level.

These results contribute to evaluability theory by showing that magnitude insensitivity can affect probability estimates (subjective probability of winning), not just willingness to pay or contribution to a public good (Desvouges et al. 1993; Hsee et al. 2005). Furthermore, we empirically confirm the link between knowledge and evaluability with two separate operationalizations of knowledge: a measured trait (sweepstakes proneness) and the experimental availability of distributional information. Finally, the sweepstakes context reveals that the visual presentation of the evaluated attribute (number of prizes) can represent a boundary condition of magnitude insensitivity. To our knowledge, this factor has not been previously identified in literature on evaluability or magnitude insensitivity.

This research also adds to scarce literature that addresses how consumers react to uncertainty in sales promotion (Dhar et al. 1999; Goldsmith and Amir 2010; Kalra and Shi 2010). Specifically, the findings offer guidelines regarding how marketers can leverage the number of prizes to increase the attractiveness of their sweepstakes and the number of participants. On the one hand, if sweepstakes organizers judge the number of prizes as an asset of their offer, they should target people who are especially interested in sweepstakes in general, situate this quantity in relation to other similar promotional offers, or reinforce this number with a consistent number of images. Failing to implement at least one of these measures likely would lead to wasted expenditures dedicated to increasing the number of identical prizes, because potential participants are insensitive to its magnitude. On the other hand, if organizers' objective is to minimize the potential negative impact of a small number of prizes as illustrated in Study 4b, those segments of customers who are not particularly keen on sweepstakes and who judge the target offer in isolation on the basis of an advertisement that illustrates the prize category with only one picture should be insensitive to the low number of prizes and participate as much as they would have for a higher number.

This research focuses on sensitivity to the number of identical prizes, without directly addressing all the other aspects of the dotation structure that marketers must determine, such as prize value or the number of prize categories to offer. However, magnitude insensitivity to the number of prizes within a certain range may inform the necessary trade-offs managers must undertake in allocating their sweepstakes budget. Our results suggest that in certain conditions, it is not worth investing in more prizes; they should devote the money instead to advertising the sweepstakes or making the prize more attractive.

Existing literature already suggests that the evaluability of an attribute determines its relative importance in the decision-making process. For example, preference reversals might result from a change in the evaluation mode (joint vs. separate) of options (Hsee 1996, 1998; Hsee et al. 1999): the mode of evaluation can change the evaluability of an attribute and consequently the relative weight of this attribute in preferences. For example, people asked how much they would be willing to pay two computer programmers differing on two attributes (i.e., programming language experience and grade point average [GPA]) gave a higher amount to the candidate with more experience when they assessed the two profiles jointly but preferred the candidate with the higher GPA when the candidates were assessed separately (Hsee 1996). The GPA attribute is easy to evaluate independently, whereas a candidate's programming experience is more difficult. Thus, when assessing candidates separately, the difficult-to-evaluate programming experience had less impact than the easy-to-evaluate GPA. Programming experience gained more importance for joint assessments though, which can explain the preference reversal between the two assessment situations. Previous methodologies relying on a joint, comparative assessment of several sweepstakes may have overestimated the impact of the number of prizes on consumers' judgment of the sweepstakes by making the number of prizes more evaluable than it would be in separate assessments.

The impact of evaluability of the number of prizes on the relative importance of the expected probability of winning in the participation decision may also explain the results in Study 4b, in that the picture manipulation, by increasing evaluability, might have led prospective participants to account for the number of prizes in their decision, which then decreased their participation when only two prizes were offered. In a similar vein, when judging a sweepstakes in isolation, a prospective participant may dedicate more weight to the prize value rather than the number of prizes because the value attribute (e.g. iPod Shuffle vs. iPod Nano vs. iPod Classic, iPod Touch 32GB vs. 64GB) is easier to evaluate than the number of prizes. In a trade-off between the number of identical prizes to offer and the unit value or size of these prizes, managers should choose to offer fewer prizes with a higher value (cf. more prizes with lesser value). This argument also aligns with the outcome prominence effect, which describes how, when the probability of winning in a lottery is ambiguous, people rely more on their valuation of outcomes (Hönekopp 2003). Conversely, when the number of prizes is not easily evaluable and people are insensitive to its variations, their perceptions of the likelihood of winning may not function as a determinant of their entry decision, whereas prize value could. This avenue for further research shows that much remains to be known about how people judge a sweepstakes offer and decide to participate.

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FOOTNOTES

1. At the end of the study, the participants in the high evaluability condition specified the minimum, maximum, and average number of winners rewarded by the five introductive sweepstakes. These questions indicated whether they had paid attention to the crucial information, namely, the number of winners. Twenty-five respondents did not correctly recall these three pieces of information. When we performed the same analysis but excluded these participants, the interaction between evaluability and the number of prizes became significant ($F(1, 83) = 4.02$, $p < .05$). The results still reveal magnitude insensitivity in the low evaluability condition ($F(1, 83) = .41$, *NS*), but the participants in the high evaluability condition who remembered the distributional characteristics of the number of prices in the other comparable sweepstakes believed they had a significantly higher likelihood of winning when there were eight winners rather than two ($M_{2prizes} = 26.0$, $M_{8prizes} = 45.69$; $F(1, 83) = 4.22$, $p < .05$). For the 25 participants who did not remember the distributional characteristics, there was no effect of the number of prizes ($M_{2prizes} = 29.62$, $M_{8prizes} = 34.58$; $F(1, 23) = .19$, *NS*). These results further support our hypothesis that knowledge is a boundary condition of magnitude insensitivity. However this analysis suffers a major limitation, in that participants were selectively dropped from one experimental condition (high evaluability); there was nothing to remember in the other condition.

2. The average probability estimate was 1.79% (SD = .07). The answers did not follow a Gaussian distribution (skewness = 5.90, SE = .23; kurtosis = 37.50, SE = .45), so we performed a logarithmic transformation to support the parametric tests (after the transformation, skewness = .80, SE = .23, kurtosis = -.30, SE = .45).

3. The answers did not follow a Gaussian distribution (M = 1,763,523; SD = 11,672,458; skewness = 10.00 , SE = .23, kurtosis = 102.03, SE = .46) so we performed a logarithm transformation (after the transformation, skewness = .30, SE = .23, kurtosis = -.18, SE = .46).

4. We also computed a probability of winning for each respondent by dividing the number of prizes in the experimental condition to which they were assigned by their estimation of the number of participants. We then took the natural logarithm of this calculated probability. This quantity increased significantly with the number of prizes ($F(3,103) = 34.06$; $p < .001$). The contrast between 1 and 10 prizes was significant ($d = 1.74$, $t(103) = 2.60$, $p = .01$), as were the contrasts between 1 and 100 ($d = 4.92$, $t(103) = 7.50$, $p < .001$) and between 1 and 1000 ($d = 5.88$; $t(103) = 8.87$, $p < .001$). The contrast between 10 and 100 prizes was significant ($d = 3.18$, $t(103)= 4.67$, $p < .001$), but that between 100 and 1000 prizes was not ($d = .96$, $t(103) = 1.43$, *NS*). These results help rule out the idea that the magnitude insensitivity of probability estimates may result from rational inferences about the number of participants. The probability estimates given by the respondents did not follow the same pattern as the probabilities obtained on the basis of their estimates of the number of entrants. The former were magnitude insensitive within a certain range; the latter increased even for moderate variations of the number of prizes.

5. The respondents' answers about their perceived chances of winning diverged from a Gaussian distribution, which made it impossible to perform Gaussian tests ($M = 1.67\%$; $SD = 3.64$; skewness = 5.11, $SE = .23$; kurtosis = 34.84, $SE = .46$, compared with 0 and 0 for a Gaussian distribution). Therefore, we used the transformation recommended by Tukey (1977) and ran the analyses on the transformed probabilities, for which Gaussian tests were applicable. This transformation involves adding a constant c to every probability estimate before computing the logarithm. In line with Tukey, after testing different values for c from .001 to 1, we adopted a value of .3, which generated a distribution of transformed probabilities that was close to Gaussian (after transformation, skewness = .84, $SE = .23$, kurtosis = –.00, $SE = .46$). Using smaller or larger values of c also did not alter the key findings.

**Appendix A**

Example of a sweepstakes used in Study 2 for the evaluability manipulation

A cosmetics store gives some secret codes to its customers and invites them to come back two weeks later where six winning secret codes will be drawn. The customers who received a secret code have to visit the store two weeks later if they want to enter the drawing. Each of the [only in the high evaluability condition: six] winners will receive the women's fragrance "Allure" de Chanel (100ml, 3.4 fl. oz.).

How demanding are the requirements to enter the sweepstake?

(Not demanding at all 1 2 3 4 5 6 7 Very demanding)

Is the type of prize appropriate for 30-year old women?

(Not appropriate at all 1 2 3 4 5 6 7 Very appropriate)

Is the type of prize consistent with the organizer?

(Not at all consistent 1 2 3 4 5 6 7 Very consistent)

[High evaluability condition] What do you think about the number of winners (6)?

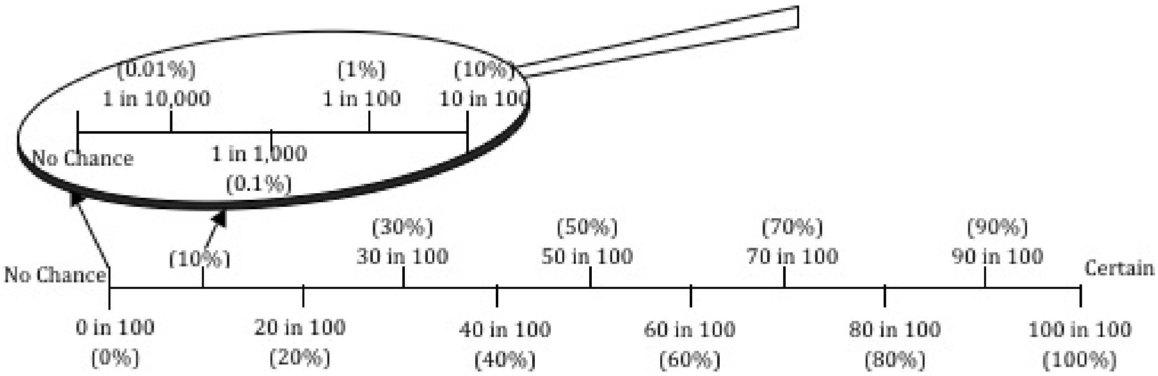
(It's a low number 1 2 3 4 5 6 7 It's a high number)

**Appendix B**

Visual analog scale (Woloshin et al. 2000) used in Study 3 to measure the estimated probability of winning

If you enter this lottery, what do you believe your chance of winning is?

Place an "X" in EITHER the magnifying glass OR the lower part of the scale to describe the chance you win if you participate to the random drawing.



**Appendix C**

Example of an ad for an actual sweepstakes featuring as many pictures as prizes to win

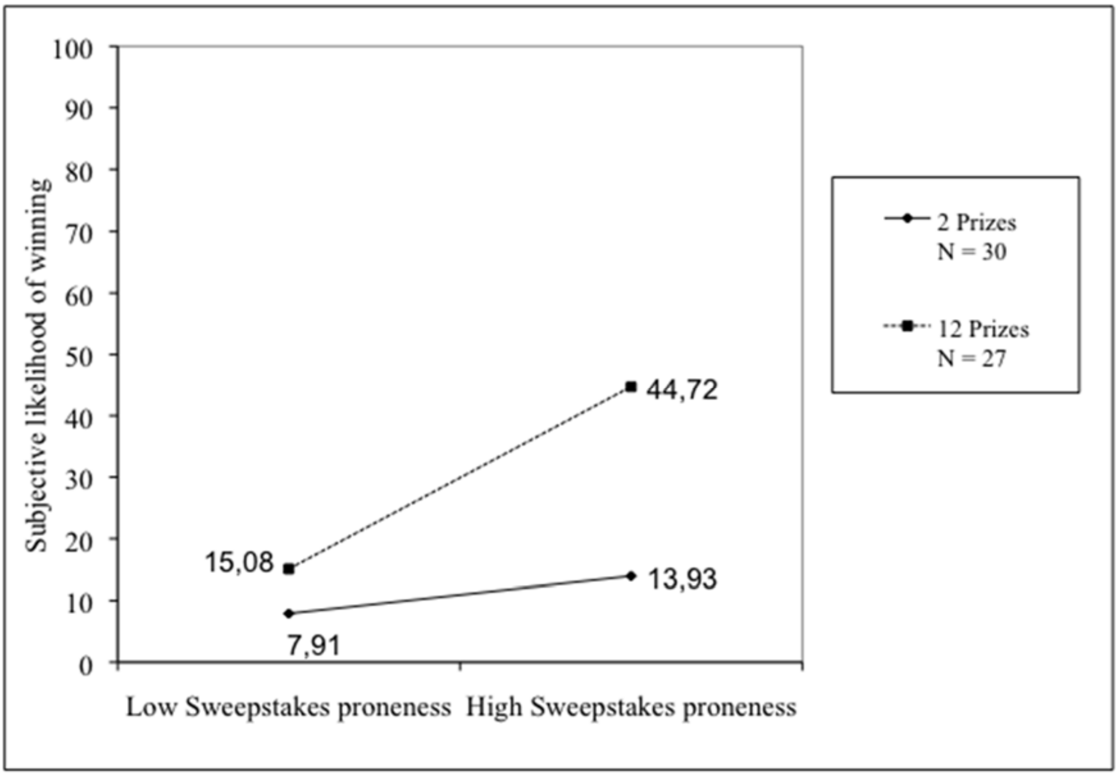



**Figure 1.** Subjective likelihood of winning as a function of the number of prizes and sweepstakes proneness (Study 1)

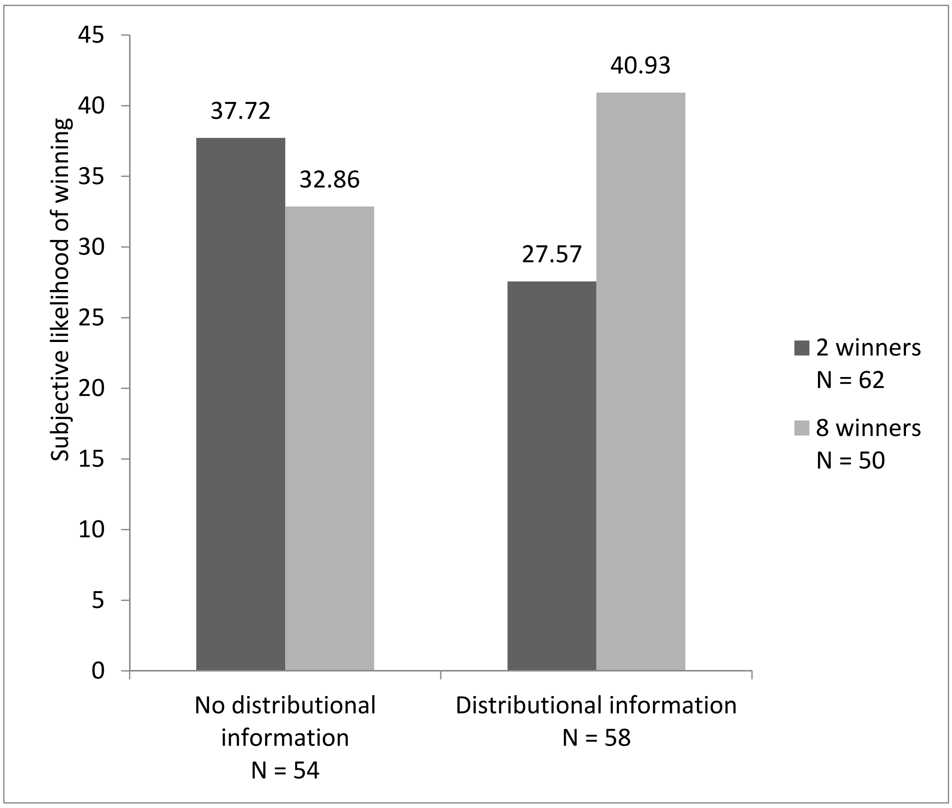



**Figure 2.** Subjective likelihood of winning as a function of the number of winners and availability of distributional information (Study 2)

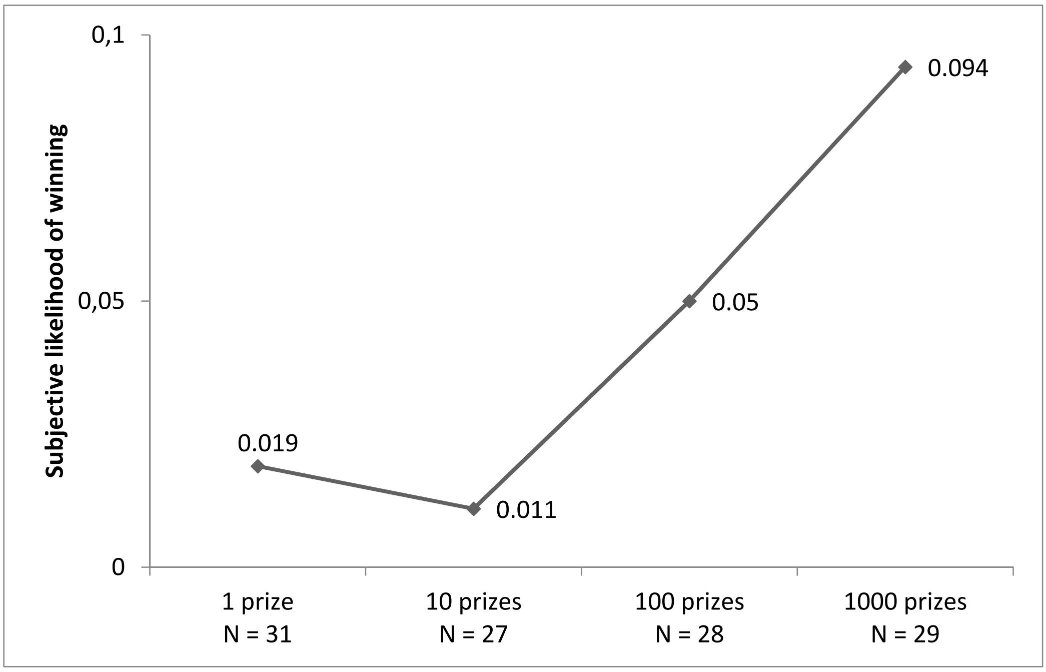



**Figure 3.** Subjective likelihood of winning as a function of the number of prizes (Study 3)

Notes: The analyses were performed on transformed answers (Y = ln(y)). The values correspond to the means after applying the reverse transformation (if Y = ln(y), then y = $e^Y$).

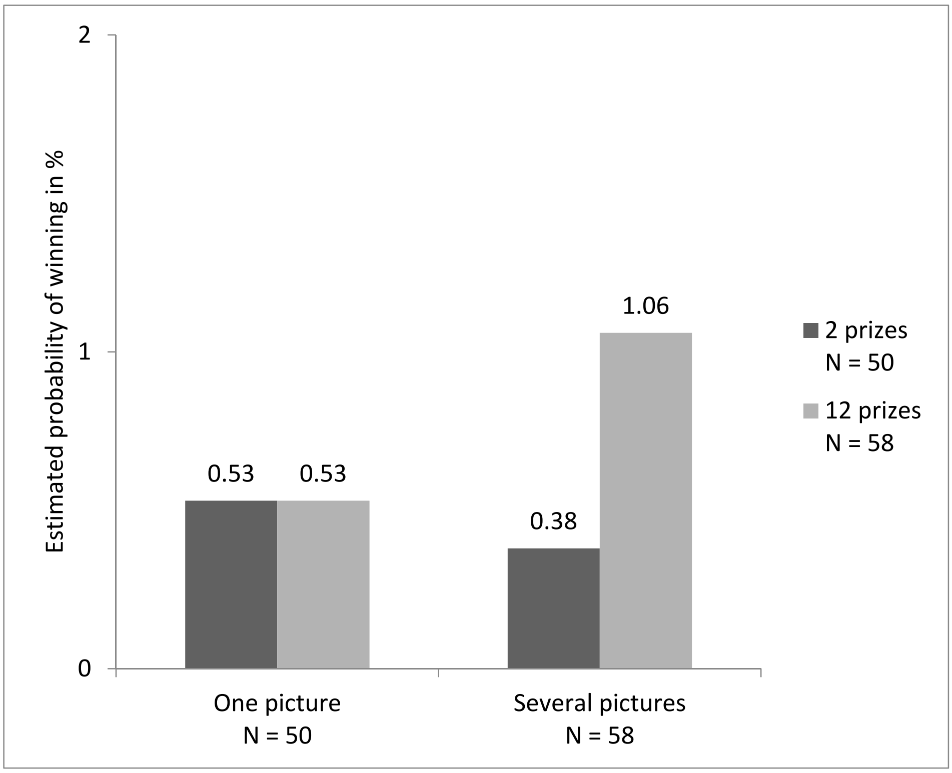



**Figure 4.** Subjective likelihood of winning as a function of the number of prizes and picture reinforcement (Study 4a)

Notes: The analyses were performed on the transformed answers ($Y = \ln(y + .3)$). The values in the graph correspond to the means after applying the reverse transformation (if $Y = \ln(y + .3)$, then $e^Y = y + .3$ and $y = e^Y – .3$).

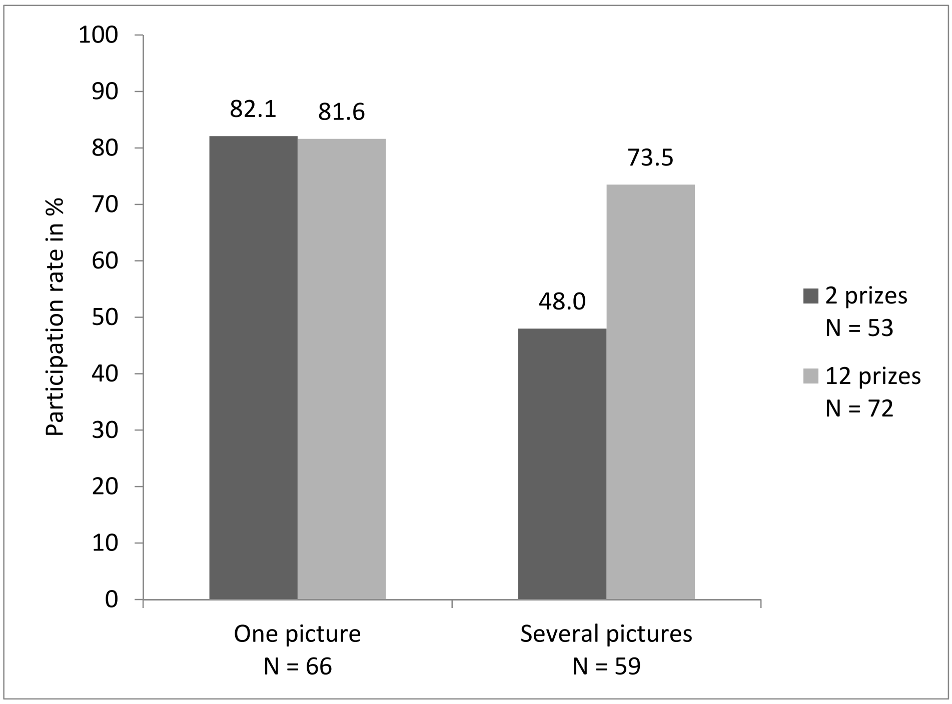



**Figure 5.** Actual participation rate as a function of the number of prizes and picture reinforcement (Study 4b)