Reports

Consuming experience: Why affective forecasters overestimate comparative value

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ABSTRACT

The hedonic value of an outcome can be influenced by the alternatives to which it is compared, which is why people expect to be happier with outcomes that maximize comparative value (e.g., the best of several mediocre alternatives) than with outcomes that maximize absolute value (e.g., the worst of several excellent alternatives). The results of five experiments suggest that affective forecasters overestimate the importance of comparative value because forecasters do not realize that comparison requires cognitive resources, and that experiences consume more cognitive resources than do forecasts. In other words, because forecasters overestimate the extent to which they will be able to think about what they did not get while experiencing what they got.

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Psychologists and economists have long believed that a person's satisfaction with an outcome can be influenced by the alternatives to which that outcome is compared. "Our wants and pleasures... are of a relative nature" wrote Karl Marx (1849/2004), who noted that a homeowner will enjoy his little house until his neighbor builds a larger one, at which time "the little house shrinks to a hut... (and) the occupant of the relatively little house will always find himself more uncomfortable, more dissatisfied, more cramped within his four walls." Extensive literatures on judgmental contrast (Biernat, 2005; Brown, 1953; Helson, 1964; Parducci, 1995), counterfactual thinking (Epstude & Roese, 2008; Kahneman & Miller, 1986), and social comparison (Festinger, 1954; Frank, 1985a, b; Suls & Wheeler, 2000) support the notion that an outcome's hedonic value can be influenced by the alternatives to which it is compared. Ordinary people seem to share this intuition, which is why they often trade absolute value for relative value (Bazerman, Loewenstein, & Blount-White, 1992; Hsee, 1998; Smith, Diener, & Wedell, 1989): When people are given a choice between an outcome that is comparatively superior but absolutely inferior (e.g., a job that pays them $45,000 and pays everyone else $40,000) and an outcome that is absolutely superior but comparatively inferior (e.g., a job that pays them $50,000 and pays everyone else $55,000), a sizeable number choose the former (Solnick & Hemenway, 1998), and those who do not typically predict that they would be happier if they did (Tversky & Griffin, 1991). Because people expect to compare their salary to its alternatives, they willingly trade the pleasure they would derive from extra income for the presumably greater pleasure they will derive from out-earning someone else.

Are such tradeoffs wise? Although people sometimes compare their outcomes to their alternatives (Buunk, Collins, Taylor, VanYperen, & Dakof, 1990; Lyubomirsky & Ross, 1997; Medvec, Madey, & Gilovich, 1995; Mellers, Schwartz & Ritov, 1999; Roese, 2004; Smith et al., 1989, Zeelenberg et al., 1998), this does not mean that they make precisely the comparisons they expect to make under the circumstances in which they expect to make them (Girotto, Ferrante, Pighin, & Gonzalez, 2007; Gilbert, Morewedge, Risen, & Wilson, 2004; Hsee & Zhang, 2004; Novemsky & Ratner, 2003; Schkade & Kahneman, 1999; Sedvalis & Harvey, 2007). We suggest that, in fact, people tend to overestimate the extent to which hedonic experiences will be influenced by the comparative value of its alternatives.

Why should this be the case? First, many experiences consume cognitive resources, limiting people's ability to think of alternatives (Addis, Wong, & Schacter, 2007; Csikszentmihalyi, 1991; Eccleston & Crombez, 1999; Fernandes & Moscovitch, 2002; Kahneman, 1973; Moscovitch, 1994). A person in the heat of battle or midst of a speech has limited cognitive ability to imagine alternative battles or speeches. This is also true of sensory experiences such as eating, which crowd out the ability to think about abstract and absent experiences (Najmi, Wegner & Nock, 2007). Binge eating, for example, restricts one's attentional capacity and ability to engage in self-evaluation (Heatherton & Baumeister, 1991).

Second, the act of comparing a target stimulus to an alternative (i.e., a standard) requires cognitive resources. One must simultaneously attend to both the target and the standard, and one must establish dimensions on which they are similar before one can notice how they differ (Gentner & Markman, 1997; Mussweiler, 2003;

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Strack, Schwarz, Bless, Kübler, & Wänke, 1993). Judgments of a target generally assimilate towards a standard, for example, and exhibit contrast only when the judge is both aware of the influence of the standard on her judgment of the target and she has sufficient cognitive resources to correct for its influence (Martin, Seta, & Crelia, 1990; Wilson, Lisle, Kraft, & Wetzel, 1989).

In contrast, when people consider an experience in advance and imagine how they will feel, that act consumes fewer of their cognitive resources. Affective forecasters bring to mind a mental representation of the event, such as eating a cookie, but are not constrained by the sensory experience that accompanies its consumption. Consequently, they have more cognitive resources available to imagine alternatives ("I could have ice cream instead") and make comparisons ("The cookie wouldn't be as good as a bowl of ice cream"). We suggest, however, that affective forecasters fail to account for this difference between their representation of an event and the experience. And because they fail to account for the greater degree to which experience consumes attention and inhibits their ability to compare a target experience to a standard, they overestimate the degree to which comparative value will influence hedonic experiences.

We tested this hypothesis in five experiments that required people to predict the hedonic value of a simple and familiar experience—the consumption of food. We expected people to underestimate how engaging this familiar experience would be and thus to overestimate the extent to which their enjoyment of the experience would be influenced by the comparative value of its alternatives. More specifically, we expected comparative value to influence affective forecasts for an experience more than affective reports of that experience.

Experiments 1, 2, and 3: overestimating comparative value

Experiments 1-3 sought to demonstrate in a single paradigm that affective forecasts overestimate comparative value—that is, they overestimate the extent to which a target experience will be compared to a past, future, or concurrent *standard*. Some participants (forecasters) predicted how much they would enjoy a target experience (i.e., eating potato chips), and other participants (experiencers) had the experience and reported how much they enjoyed it. All participants were also presented with a standard whose value was either superior (e.g. chocolate) or inferior (e.g., sardines) to the target experience. In Experiment 1, participants first imagined eating or ate the standard (i.e., chocolate or sardines) and then imagined eating or ate the target (i.e., potato chips). In Experiment 2 this order was reversed; participants first imagined eating or ate the target and then imagined or ate the standard. In Experiment 3 the standard was presented concurrently with the target; participants imagined eating or ate potato chips while in the presence of a selection of superior or inferior foods. In all three experiments, we expected that affective forecasts for the target experience would be influenced by their comparative value, but that hedonic experiences of the target would not be influenced by their comparative value.

Experiment 1: standards past

Method

Participants

Forty-five students at Harvard University (36 women, $M_{age} = 21.3$ years, $SD = 4.6$ years) received \$3 for participating in the experiment.

Pretest

In a pre-test, 23 volunteers at Harvard University (11 women, $M_{age} = 20.26$, $SD = 1.3$) ranked how much they would enjoy eating thirty-two foods by ranking the foods in order from their *favorite* (1) to their *least favorite* (32). Participants reported that they would enjoy eating the superior standard (Godiva Raspberry Dark Chocolate Bars; $M = 7.48$, $SD = 8.0$) more than eating the target experience (Lay's Classic Potato Chips; $M = 15.43$, $SD = 8.0$), $t(22) = 3.31$, $p = .003$, and that they would enjoy eating the target more than the inferior standard (Beach Cliff Sardines; $M = 25.04$, $SD = 7.69$), $t(22) = 5.05$, $p < .001$.

Procedure

Participants were seated at a table on which there were two foods: potato chips (the target) and another food (the standard). Participants evaluated the standard first and the target second. All foods were provided in snack-size quantities.

Participants were then assigned to one of two roles: *Forecasters* predicted how much they would enjoy the standard and then predicted how much they would enjoy the target. *Experiencers* ate the standard and reported how much they enjoyed it, and then ate the target and reported how much they enjoyed it. All predictions and reports of enjoyment were made by marking a 143 mm continuous line that was anchored at the endpoints with the phrases *not at all* (0) and *very much* (143). Assignment to condition was random in this and all subsequent experiments.

Results

Participants' ratings of their enjoyment of the target were submitted to a 2 (Role: forecaster, experiencer) × 2 (Standard: inferior, superior) between subjects ANOVA, which revealed only the predicted Role × Standard interaction, $F(1, 41) = 5.17$, $p = .028$, $\eta_p^2 = .11$. Planned comparisons revealed that forecasters expected to enjoy the chips more when they were eaten after the inferior than after the superior standard, $F(1, 41) = 8.96$, $p = .005$, but experiencers enjoyed the chips equally in both conditions, $F < 1$ (see Table 1).

Discussion

Affective forecasters predicted that eating superior chocolate or inferior sardines would influence their subsequent enjoyment of potato chips, but they were wrong. Experiencers reported similar enjoyment of the potato chips whether they were preceded by superior chocolate or by inferior sardines. These results are consistent with the results of similar experiments by Novemsky and Ratner (2003), who found that affective forecasters overestimated how much the order in which jellybeans were consumed (i.e., "good then neutral then bad" as opposed to "bad then neutral then good") would influence their enjoyment of the neutral jellybean. Both Experiment 1 and Novemsky and Ratner's (2003) experiments suggest that affective forecasters overestimate the extent to which comparative value will influence hedonic experience.

However, it is possible that in both our Experiment 1 and in Novemsky and Ratner's (2003) experiments, affective forecasters did

Table 1
Enjoyment of target by role and standard in Experiments 1, 2, and 3.

Role	Standard	
	Superior	Inferior
Experiment 1		
Forecasters	74.6 (33.4)$_a$	115.4 (26.8)$_b$
Experiencers	96.92 (32.3)$_a$	94.4 (34.5)$_a$
Experiment 2		
Forecasters	48.8 (29.0)$_a$	101.8 (29.9)$_b$
Experiencers	102.3 (15.6)$_a$	114.0 (18.6)$_a$
Experiment 3		
Forecasters	56.2 (44.3)$_a$	90.2 (32.6)$_b$
Experiencers	82.2 (31.4)$_a$	72.2 (38.2)$_a$

Note: Standard deviations are in parentheses. Means within rows that do not share a common subscript differ significantly at $p < .05$. Scale range is from 1 to 143 mm.

not overestimate the influence of comparative value on enjoyment of a target food, but rather, erroneously anticipated how the flavors of a target and standard food would co-mingle. For example, forecasters might have had difficulty imagining how chocolate affects the taste of potato chips (in Experiment 1) or how licorice combines with green apple (in Novemsky and Ratner's studies). To address this concern, in Experiment 2 we switched the temporal order of evaluation so that the flavor of the standard could not influence the flavor of the target food by having participants evaluate the target food before they evaluated the standard food.

Experiment 2: standards future

Method

Participants

Thirty-one students at Harvard University (18 women, $M_{age} =$ 18.43 years, $SD = 2.4$ years) received \$3 for participating in the experiment.

Procedure

The procedure was identical to that of Experiment 1, except that participants ate or imagined eating the target food first and the standard food second.

Results

Participants' ratings were submitted to a 2 (Role: forecaster, experiencer) × 2 (Standard: inferior, superior) between subjects ANOVA, which revealed main effects of Role, $F(1,27) = 14.15$, $p = .001$, $\eta_p^2 = .34$, and of Standard, $F(1,27) = 13.72$, $p = .001$, $\eta_p^2 = .34$, both of which were qualified by a Role × Standard interaction, $F(1,27) = 5.57$, $p = .026$, $\eta_p^2 = .17$ (see Table 1). Planned comparisons revealed that forecasters expected to enjoy the chips more when they were eaten before sardines than before chocolate, $F(1, 27) = 19.04$, $p < .001$, but experiencers enjoyed the chips equally in both conditions, $F < 1$.

Discussion

Affective forecasters predicted that the future consumption of superior chocolate or inferior sardines would influence their present enjoyment of potato chips, and they were wrong. Experiencers enjoyed eating potato chips just as much when they ate them before superior chocolate as when they ate them before inferior sardines. The results of Experiments 1 and 2 suggest that affective forecasts overestimate the influence of comparative value on experiences, whether those experiences are compared to past or future standards.

In Experiments 1 and 2, predictions and experiences were reported on the same scales, and forecasters and experiencers made explicit evaluations of the same target and the same standards in the same order, so it is unlikely that a scaling effect or a conversational norm (e.g., Parducci, 1995; Schwarz & Strack, 1999) was responsible for this difference between predictions and experiences. To fully alleviate these concerns, in Experiment 3 we asked forecasters and experiencers to evaluate a target experience while in the presence of a superior or inferior standard, but we did not ask them to evaluate the standard itself.

Experiment 3: standards present

Participants in Experiment 3 evaluated a target experience while in the presence of superior or inferior foods that were never mentioned. As in Experiments 1 and 2, we predicted that forecasters would overestimate the influence of comparative value on enjoyment of the target experience.

Method

Participants

Forty-five students at Harvard University (35 women, $M_{age} =$ 20.40 years, $SD = 2.6$ years) received \$3 for participating in the experiment.

Materials

We chose two subsets of food to include from the pre-test described in Study 1. A subset of five foods (Godiva Chocolate Bars, M&M's, Hershey's Bars, Snickers' Bars, and Reese's Peanut Butter Cups), all of which were ranked significantly higher than the Lay's Potato Chips, all $ts(22) > 3.31$, $ps < .001$, served as the superior standard. A subset of five foods (plain tofu, Spam, canned haggis, canned sardines, and canned salmon), all of which were ranked significantly lower than Lays Potato Chips, served as the inferior standard, all $ts(22) > 3.29$, $ps < .003$.

Procedure

Participants in a "consumer evaluation study" were seated at a table in front of a target food (potato chips). In the left-hand corner of the room were the five superior foods or the five inferior foods that served as standards (see Fig. 1). Some participants (experiencers) ate the target food, and others (forecasters) spent 2 min imagining eating the target food. All participants then rated the target food on the same scale used in Experiment 1. The standard foods were never tasted, never rated, and never mentioned by the experimenter.

Results

Participants' ratings were submitted to a 2 (Role: forecaster, experiencer) × 2 (Standard: inferior, superior) between subjects ANOVA, which revealed only a Role × Standard interaction, $F(1, 41) = 4.01$, $p = .05$, $\eta_p^2 = .09$. Planned comparisons revealed that forecasters expected to enjoy the potato chips more when they were eaten in the presence of inferior than superior foods, $F(1, 41) = 4.72$, $p = .036$, but experiencers enjoyed the potato chips equally in both conditions, $F < 1$ (see Table 1).

Discussion

Affective forecasts once again overestimated the extent to which a hedonic experience would be influenced by its comparative value, even when the comparison standards were neither rated nor mentioned. It is thus unlikely that scaling effects or conversational norms were responsible for the observed differences between forecasts and experiences in Experiments 1 and 2.

Experiments 4 and 5: process tests

In Experiments 4 and 5, we examined whether the overestimation of comparative value demonstrated in Experiments 1-3 was due to the different attentional constraints imposed by affective forecasts and hedonic experiences. We expected that experimentally manipulating the attentional resources required to make comparisons or available to make comparisons would moderate the overestimation of comparative value. To test this prediction, we manipulated the difficulty of comparing a target experience and a standard experience in Experiment 4, and we manipulated the amount of attentional resources consumed by the act of forecasting or experiencing in Experiment 5.

Experiment 4: easy and difficult comparisons

In Experiment 4, we manipulated two things: (a) the magnitude of the difference between the value of a target experience and a standard
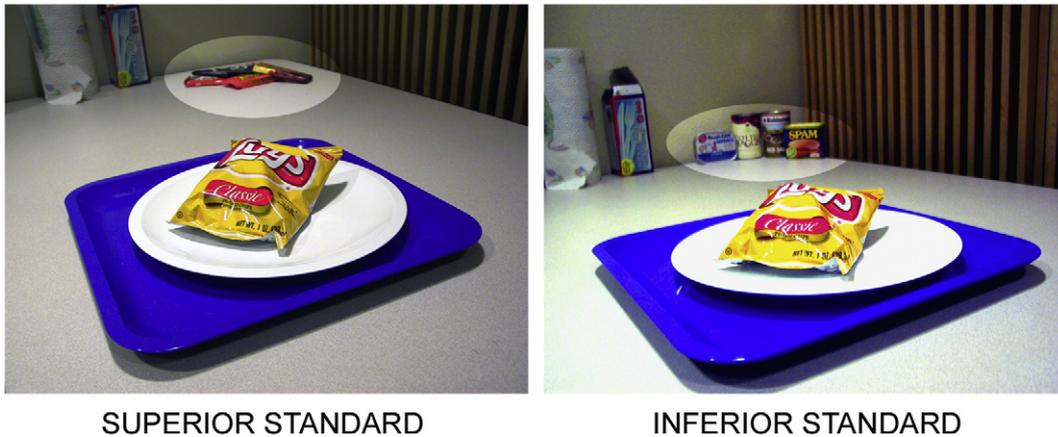
SUPERIOR STANDARD   INFERIOR STANDARD

Fig. 1. Example of stimuli used in Experiment 3.

experience, and (b) the ease with which the target experience and the standard experience could be compared. We expected forecasters to be more strongly affected by the first manipulation than by the second, but we expected experiencers to be more strongly affected by the second manipulation than by the first.

As shown in Fig. 2, we manipulated both variables by manipulating the similarity of the standard to the target. When standards and targets are similar, then differences in value are moderate and comparison is easy; but when standards and targets are dissimilar, then differences in value are large and comparison is difficult (Gentner & Markman, 1997; Goldstone & Medin, 1994; Tversky &

Griffin, 1991). Participants either ate or imagined eating a standard food, and then ate or imagined eating a target food (potato chips). In the *difficult comparison/extreme values* condition, the standards were dissimilar foods: chocolate (superior) or sardines (inferior). In the *easy comparison/moderate values* condition, the standards were similar foods: gourmet chips (superior) or generic chips (inferior). We expected that forecasters would be more strongly influenced by comparative value than by the ease of making a comparison, thus we expected the manipulation to have a greater effect on them in the difficult comparison/extreme values condition than in the easy comparison/moderate values condition. Conversely, we expected
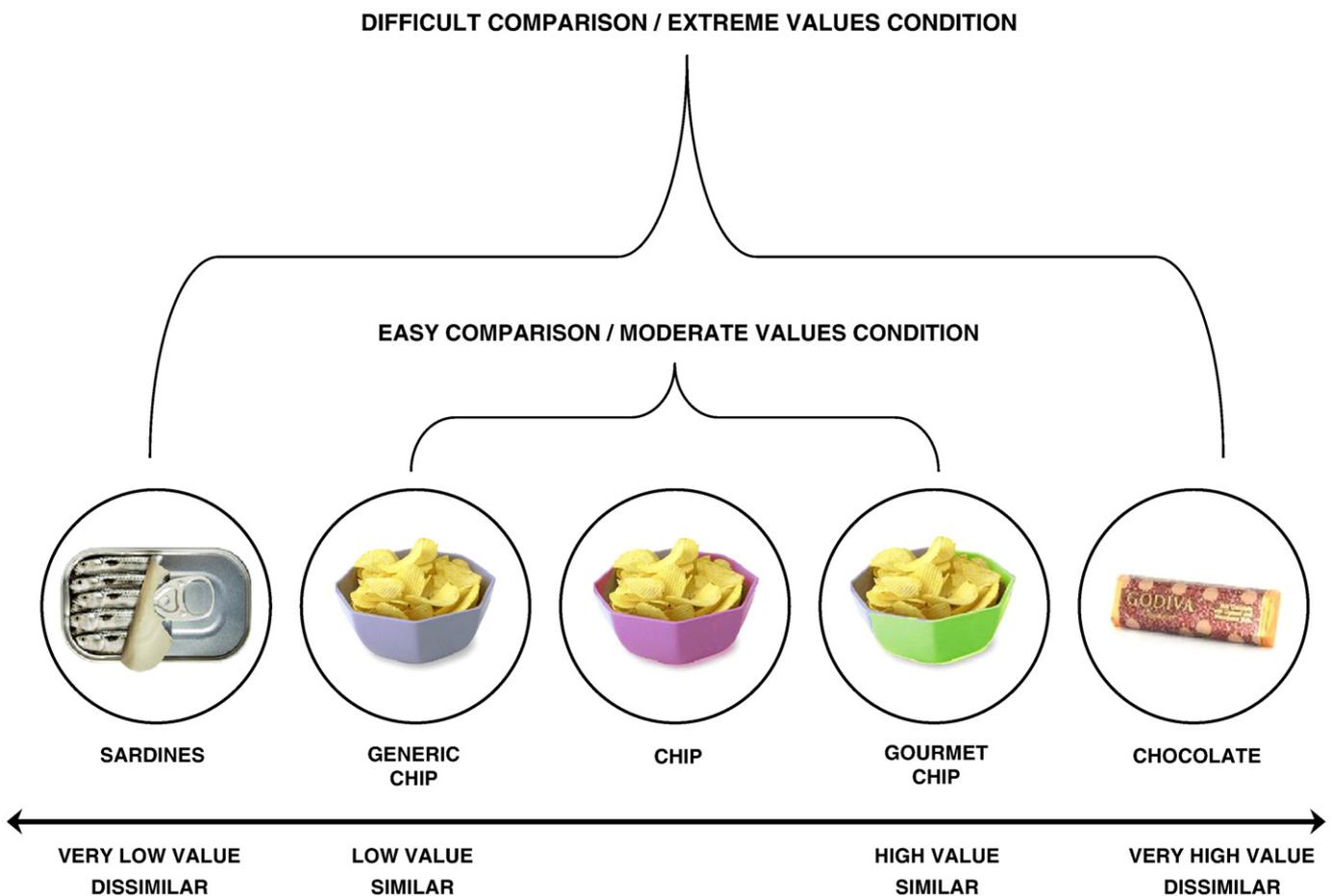

Fig. 2. Example of stimuli used in Experiment 4.

that experiencers would be more strongly influenced by the ease of making a comparison than by comparative value, thus we expected the manipulation to have a greater effect on them in the easy comparison/moderate values condition than in the difficult comparison/extreme values condition.

Method

Participants

One hundred and nineteen Harvard University undergraduates (76 females; $M_{age} = 20.6$, $SD = 3.3$) received $5 for participating in the experiment. One participant's responses were excluded from all further analyses because he or she did not complete the experiment.

Stimuli

The target food item in this experiment, *Bachman's Golden Ridges* potato chips ($M_{Bachman's} = 6.40$, $SD = 1.81$), was considered by participants in two pre-tests to be superior to the *inferior standards*, *Shaw's No Salt* potato chips ($M_{Shaws} = 4.23$, $SD = 1.54$), $t(25) = 6.97$, $p < .001$, and *Beach Cliff* canned sardines ($M_{Sardines} = 2.65$, $SD = 6.03$), $t(47) = 2.66$, $p = .01$, and inferior to the *superior standards*, *Lay's Classic* potato chips ($M_{Lays} = 7.52$, $SD = 1.19$), $t(25) = 3.23$, $p < .003$, and *Godiva Raspberry Dark* chocolate bars ($M_{Chocolate} = 8.04$, $SD = 2.49$), $t(47) = 3.02$, $p = .004$.

Procedure

Participants who reported for a "consumer evaluation study" were seated at a table on which there were two food items. In the *easy comparison/moderate values* condition, the target food was *Bachman's Golden Ridges* potato chips and the standard food was a superior or inferior kind of potato chips. In the *difficult comparison/extreme values* condition, the target food was *Bachman's Golden Ridges* potato chips and the standard food was either superior chocolate or inferior sardines. Participants were told that they would evaluate the standard food first and evaluate the target food second.

Participants were randomly assigned to play the role of *forecaster* or *experiencer*. Forecasters first imagined eating and then evaluated the standard food, and then they imagined eating and then evaluated the target food. Experiencers first ate and then evaluated the standard food, and then they ate and then evaluated the target food. Evaluations were made on scales identical to those used in Experiment 1.

Results

A 2 (Role: forecaster, experiencer) × 2 (Standard: superior, inferior) × 2 (Comparison: easy, difficult) between subjects ANOVA revealed a main effect of Standard, $F(1,110) = 4.74$, $p = .032$, $\eta_p^2 = .04$, which was qualified by the predicted 3-way interaction, $F(1,110) = 4.33$, $p = .04$, $\eta_p^2 = .04$. Forecasters expected to enjoy the chips more when they imagined eating them after eating sardines than chocolate, $F(1,110) = 5.16$, $p = .03$, but expected to enjoy the chips equally whether they were eaten after eating gourmet chips or generic chips, $F < 1$. Conversely, experiencers enjoyed eating the chips equally whether they ate them after eating sardines or chocolate, $F < 1$, but they enjoyed the chip more when they ate them after eating generic chips than after eating gourmet chips, $F(1,110) = 7.67$, $p = .007$ (see Table 3).

Discussion

Forecasters were more strongly influenced by comparative value than by the ease of making a comparison, and experiencers were more strongly influenced by the ease of making a comparison than by comparative value. These results are consistent with our suggestion that having a hedonic experience consumes more cognitive resources than does making forecasts about that hedonic experience, and that

because experiencers have fewer resources available they are less likely to compare their experience to its alternatives. In other words, forecasts overestimate the influence of comparative value on hedonic experiences because they have resources available to make those comparisons—resources that experiences lack. We tested this hypothesis directly in Experiment 5.

Experiment 5: engaging and unengaging experience

In Experiment 5, we manipulated the attentional demands of making a forecast and of having an experience. We did this by using time extension. Just as time pressure increases the attentional demands of a task, time extension decreases those demands (Liberman & Trope, 2008; Svenson & Maule, 1993). To do this, we decreased the rate at which participants were asked to eat or to imagine eating potato chips. While conducting Experiments 1-4, we observed that experiencers who were allowed to eat potato chips at their own pace typically ate at the rate of about one chip every 15 s. In Experiment 5, some participants were instructed to eat or to imagine eating potato chips at this pace and others were instructed to eat or to imagine eating at the much slower pace of one chip every 45 s.

If forecasters overestimate the influence of comparative value because they do not realize the extent to which experiences will usurp their cognitive resources, then forecasters should anticipate comparing the potato chips to the other foods regardless of whether they imagine eating chips at a regular or a slow pace. Experiencers, however, should only compare the chips to their alternatives when they eat at a slow pace, because only then should experiencers have sufficient cognitive resources to compare the potato chips to the other foods.

Method

Participants

Ninety-eight students at Harvard University (42 women, $M_{age} = 21.3$ years, $SD = 6.0$ years) received $4 for participating in the experiment.

Procedure

Participants were seated at a table on which there were potato chips (the target) and either sardines (the *inferior standard*) or chocolate (the *superior standard*). The experimenter explained that he or she was interested in how Americans enjoy eating different foods while watching television, and that participants would evaluate just one of these food items. The experimenter then flipped a two-headed coin and told the participant that he or she would evaluate the potato chips. Participants were randomly assigned to play the role of *forecaster* or *experiencer*. Forecasters imagined eating the target and experiencers ate the target.

Participants were then told that to simulate the average American's experience of eating chips while watching television, the participant should eat or imagine eating one chip every time he or she heard a bell ring. In the *regular pace* condition, participants heard a bell ring every 15 s. In the *slow pace* condition, participants heard a bell ring every 45 s. After the bell rang five times, forecasters were asked to predict how much they would enjoy eating the potato chips and experiencers were asked to report how much they had enjoyed eating the potato chips. They did so by marking the same scales used in Experiment 1. Participants did not rate the standard food.

Results

Participants' ratings of their enjoyment of the target were submitted to a 2 (Role: forecaster, experiencer) × 2 (Standard: inferior, superior) × 2 (Pace: regular vs. slow) between subjects ANOVA, which revealed a main effect of Standard, $F(1, 90) = 10.17$,

$p = .002$, $\eta^2 = .10$, which was qualified by a Role × Standard × Pace interaction, $F(1, 90) = 4.33$, $p = .04$, $\eta^2 = .05$ (see Table 2). Forecasters expected to enjoy chips more when the standard was sardines rather than chocolate, and this was true whether they imagined eating at a slow pace, $F(1,90) = 4.51$, $p = .03$, or at a regular pace, $F(1,90) = 8.96$, $p = .004$. Experiencers enjoyed eating chips more when the standard was sardines rather than chocolate, but only when they ate at a slow pace, $F(1,90) = 5.23$, $p = .025$, and not when they ate at a regular pace, $F < 1$ (see Table 3).

Discussion

In Study 5, participants' affective forecasts were not influenced by the pace at which they imagine eating. Whether they imagined eating at a regular pace or a slow pace, their forecasts were influenced by comparison standards. But participants' actual experiences were influenced by the pace at which they ate. When they ate at a regular pace, their experience was not influenced by comparison standards; but when they ate at a very slow pace, it was. This result suggests that having an experience consumes more attentional resources than does making a forecast about that experience, and that forecasters do not sufficiently take this fact into account.

General discussion

Because people expect to compare their outcomes with their alternatives, they sometimes trade absolute value for comparative value, preferring to be the highest paid employee of a low-paying company rather than the lowest paid employee of a high-paying company, or to own a small house in a neighborhood of smaller houses rather than a large house in a neighborhood of larger houses (Bazerman et al., 1992; Solnick & Hemenway, 1998; Smith et al., 1989; Tversky & Griffin, 1991). If people reaped the benefits of these comparisons, then such tradeoffs would be wise, but the foregoing experiments suggest that people have some difficulty anticipating when comparative value will and will not influence their enjoyment of hedonic experiences. Participants' forecasts overestimated the extent to which a simple hedonic experience would be influenced by an experience they had before (Experiments 1 and 4), expected to have later (Experiment 2), or might have had but did not (Experiments 3 and 5), and this happened because forecasters failed to consider the fact that experience consumes attention and thus makes comparison more difficult and less likely (Experiments 4 and 5). We do not mean to imply that experiencers do not engage in comparison, because clearly they do (as they did in the easy comparison/moderate values condition of Study 4 and the slow pace condition of Study 5). Rather, our results show that forecasters are not perfectly sensitive to the conditions under which such comparisons will and will not be made.

It is important to note that the present studies all examined the consumption of food, and though this is a basic and powerful hedonic

Table 2
Enjoyment of target by role, standard, and ease of comparison in Experiment 4.

Role	Standard	
	Superior	Inferior
Difficult Comparison / Extreme Value (Chocolate or Sardines)		
Forecasters	62.9 (45.7)$_a$	89.7 (26.8) $_b$
Experiencers	94.9 (37.6)$_a$	92.8 (21.6)$_a$
Easy Comparisons/Moderate Value (Other Potato Chips)		
Forecasters	83.2 (25.7) $_a$	86.4 (39.3)$_a$
Experiencers	74.9 (27.8)$_a$	98.8 (26.2)$_b$

Note: Standard deviations are in parentheses. Means within rows that do not share a common subscript differ significantly at $p < .05$. Scale range is from 1 to 143 mm.

Table 3
Enjoyment of target by role, standard, and pace of consumption in Experiment 5.

Role	Standard	
	Superior	Inferior
Regular Pace (15 s Intervals)		
Forecasters	72.0 (44.9)$_a$	109.2 (27.4)$_b$
Experiencers	99.8 (31.8)$_a$	88.5 (26.3)$_a$
Slow Pace (45 s Intervals)		
Forecasters	78.7 (34.0)$_a$	104.6 (29.4)$_b$
Experiencers	75.3 (39.0)$_a$	107.6 (28.6)$_b$

Note: Standard deviations are in parentheses. Means within rows that do not share a common subscript differ significantly at $p < .05$. Scale range is from 1 to 143 mm.

experience that is familiar to everyone, it may also be a unique domain. The sensory experience of eating may consume more cognitive resources than other hedonic experiences, such as satisfaction with one's income or one's home. People may be more likely to overestimate the extent to which they will compare foods than they are to overestimate the extent to which they will compare salaries or houses. Although we see no reason why the basic principles that describe behavior in this domain should not generalize to other domains, this is ultimately an empirical question that future research must test.

It is important to note that we are by no means the first to suggest that differences in comparisons made while forecasting and experiencing give rise to errors in prediction. Previous research has shown that errors in forecasting arise when people use *different* comparison standards when making affective forecasts and evaluating hedonic experience (e.g., Gilbert et al., 2004; Hsee & Zhang, 2004). Schkade and Kahneman, for example, suggested that when evaluating the impact of location on life satisfaction, "relative advantages of California (or disadvantages of the Midwest) loom large when a resident of one region considers the possibility of life in the other. When people answer a question about their own life satisfaction, however, their attention is focused on more central aspects of life." (1999, p. 345). In a similar vein, Wilson and colleagues showed that errors arise when, "People think too much about the focal event and fail to consider the consequences of other events that are likely to occur" (Wilson, Wheatley, Meyers, Gilbert, & Axsom, 2000, p. 821). Our results show *why* affective forecasters overestimate comparative value even when the *same* comparison standard is readily available during affective forecasts and hedonic experiences—because forecasters do not sufficiently account for the extent to which experience consumes attention and diminishes the ability to compare it to its alternatives.

The ability to accurately estimate the value of future events provides the foundation for intelligent behavior, and organisms that cannot predict which future events will be most valuable to them are at a decided disadvantage in the quest for satisfaction, pleasure, or happiness. Human beings make these predictions by simulating future events in their imaginations and then working to experience some and to avoid others. The present research suggests that these acts of imagination do not always provide accurate estimates of future enjoyment because when people are in the midst of a consuming experience, they are not always able make the comparisons they anticipated.

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