

The Vicarious Construal Effect:  
Seeing and Experiencing the World Through Different Eyes

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### Abstract

That two individuals can look at the same stimulus and experience it differently speaks to the power of construal. People's construals are shaped by their idiosyncratic attitudes, belief systems, and personal histories. Accordingly, amusing delights for children often become bland bores for adults. Eleven studies provide support for a *vicarious construal effect*: Considering construals one once had but seemingly lost, one ordinarily would have only with more experience, or one would not have had spontaneously, all exert an assimilative pull on one's ongoing experiences. This means habituation can be slowed or stalled by considering another's fresh perspective (Studies 1-6, 8,10), desensitization can be preemptively achieved by considering another's stale perspective (Study 7), and that attitudes toward a movie change by considering how fans or nonfans would see it (Studies 9a-9b). Blind to the power of construal in defining their experiences, participants believed they learned something new about their underlying preferences ("I never realized how much I enjoy anime films!"), not something about the experience-distorting effects of the perspective manipulations. These effects emerged in examinations of positive emotions, negative emotions, engagement, attitudes, and perceptions of humor. Various features of the studies identified which conditions are necessary to produce the vicarious construal effect and minimized concerns that methodological artifacts or experimenter demand produced the effects. The research helps explain why social experiences often differ from solo ones, illustrates a practical technique for breathing new life into old experiences, and demonstrates how people can seemingly learn about themselves by trying to understand others.

*Keywords: perspective taking, construal, habituation, naïve realism, attitudes, theory of mind*

### The Vicarious Construal Effect: Seeing and Experiencing the World Through Different Eyes

Having lived in the same city for ten years, New York City photographer Dolly Faibyshev had become uninspired and even jaded about her surroundings. Intrigued by the excitement and zeal that each planeload of tourists brought to her environs, Dolly set out to become one of them. Like many a real tourist, Dolly packed up her camera and headed to well-trodden ground. She stood among a sea of amateur photographers at the foot of the Empire State Building, outside a popular Broadway show, and on the top deck of the ferry as it approached the Statue of Liberty. Instead of viewing tourists as sidewalk obstacles to navigate around, Dolly embraced them as novices on whose energy she could feed off and whose untarnished perspectives she could borrow. And her resulting photography project “I Love New York” sought to capture what she resaw and relearned (Terranova, 2014).

Several psychology literatures on social influence can help to explain Dolly’s rejuvenating experience. First, Dolly may have found that in trying to become one with tourists, their palpable excitement and awe was contagious (Hatfield, Cacioppo, & Rapson, 1992; Neumann & Strack, 2000; Schoenewolf, 1990). That is, surrounded by the real tourists’ oohs and aahs, Dolly may have caught this rush of excitement. Those who frequent cinema, concert halls, and other live venues know how emotional outbursts from a few can help to charge the room, intensifying others’ experience as well. Second, Dolly may have directly learned (or relearned) from the tourists as they described their experiences (Koenig, Clement, & Harris, 2004; Harris & Richert, 2008). “I think the building touches the clouds!” one tourist might proclaim, causing Dolly to visually explore an angle she had seemingly lost the ability to notice. For both of these reasons, Dolly may have experienced renewed joy from essentially co-experiencing these

attractions with others. And indeed, sharing experiences with others intensifies them—the positive and the negative, alike (Boothby, Clark, & Bargh, 2014).

Implicit in this characterization is that with Dolly's expertise she grew ignorant. Although Dolly should no doubt be trusted with many questions about New York City (we would trust her over the tourists on the difference between the 1/2/3 and the A/C/E subway lines), she had lost a perspective she once had. But consider if Dolly had returned to these sites at a time when no tourists—or even anyone else—were there. There would be no squeals of delight to lift her spirits, no excited comments that could teach her how to be a newcomer once again. Could Dolly benefit from merely trying to consider how a hypothetical tourist might experience these sites?

By one account, such an enterprise would be about as effective as a non-Spanish-speaker trying to consider how a Spaniard would speak in order to have a conversation in Spanish; without access to the relevant expertise (i.e., knowledge of Spanish), such a person will not be able to *will* a fluent conversation. But as we will argue below, alternative construals—even those one had but seemingly lost—are more like hypotheses that one can test out and literally experience the results. In what follows, we develop this *vicarious construal effect* (VCE), consider how it is both plausible and surprising in light of past research, and describe our empirical strategy for investigating the conditions under which it emerges and just how subjectively veridical (as opposed to distorted) of an altered experience it induces.

### **The Vicarious Construal Effect**

Psychologists have long appreciated the role that people's subjective construal plays in guiding their understanding and experience of reality (Griffin & Ross, 1991; Nisbett & Ross, 1991; Nisbett & Ross, 1980; Hastorf & Cantril, 1954). And because people carry with them

different experiences (Campbell, O'Brien, Van Boven, Swartz, & Ubel, 2014), beliefs (Lord, Ross, & Lepper, 1979; Critcher & Dunning, 2009), group identities (Vallone, Ross, & Lepper, 1985), and other motivations (Caruso, Mead, & Balcetis, 2009), different people construe a single stimulus in different ways. In what has become a classic case study for social psychologists, Princeton and Dartmouth football fans who watched the same physical, intensely contested matchup between their respective teams appeared to have seen different games (Hastorf & Cantril, 1954; Plassman, O'Doherty, Shiv, & Rangel, 2008).

The power of construal is important not merely in understanding why different people may respond to the same event differently, but also in understanding why the same person may show a change in response to the same stimulus. Repeated exposure to or consumption of a particular stimulus typically leads to habituation, a decline in response to that stimulus (Groves & Thompson, 1970; Thompson & Spencer, 1966). Of course, it is natural to ask whether such diminished responses reflect changing construals (being unable to see what one once saw) or instead a limit to how much one can show or experience certain responses (reaching one's limit and thus becoming "laughed out" or "cried out"). In general, habituation characterizes a response to a specific stimulus (a particular *Jerry Seinfeld* clip), not a specific style of emitted response (laughter), suggesting that a shifting construal of the stimulus may be a key contributor to habituation (Rolls, Rolls, Rowe, & Sweeney, 1981; Rolls, Duijvenvoorde, & Rolls, 1984; Epstein, Caggiula, Rodefer, Wisniewski, & Mitchell, 1993).

Several lines of research give examples of how the subjective construal of a stimulus influences how people respond to it across time. For example, when people consume jelly beans, they habituate to them more quickly by thinking of what they are consuming as members of one superordinate category (jelly beans) as opposed to the numerous subcategories (e.g., cherry,

banana, watermelon jelly beans) from which the flavors come (Redden, 2007). Of course, in this example, people are not exposed to a literally identical stimulus repeatedly. Calling attention to each stimulus's novelty or glossing over those distinctions shapes people's responses by framing their exposure as less or more repetitive, respectively. While consuming a literal variety of stimuli decreases habituation (Brondel et al., 2009; Epstein et al, 2009; Galak et al, 2011; Havermans & Brondel, 2013; Inman, 2001; Sørensen et al, 2003; Temple et al., 2008), even the mere perception of consuming variety reduces habituation as well. For example, even when people have the same habituating experience of listening to a favorite song repeatedly, merely thinking about other songs they had recently listened to decreased habituation to the same favorite song (Galak, Redden, & Kruger, 2009). What remains unclear is whether through objectively repetitive experiences, people retain access to or some control over construals that they once had but, like photographer Dolly, seem to have lost.

Whether people retain or can reaccess these seemingly misplaced construals is ultimately an empirical question, but we first consider how this might be done and why people tend not to do it spontaneously. A fundamental tenet of *naïve realism* is that people experience the world as if they see an undistorted reality (Ross & Ward, 1995). People are blind to the importance of their own idiosyncratic lenses that shape their own subjective reality. From this perspective, it may not be that people do not have access to many lenses through which they can see and experience the world. Instead, the immediacy of their reality blinds them from considering the options they may have.

If people are blind to construals, how might they adopt a different one? In the present research, we do this by informing (some) participants that after they have a certain experience, they will be asked to guess how someone else—someone characterized by different preferences

or a different history of experience—would respond to it. In this way, people approach the experience trying to answer the question, “What would someone else—someone with a different construal—see?” This approach is similar to approaching a target with an expectation (“I know this fresh experience will be more vivid and intense for someone else. Let me see if I can see just how much so...”) Such expectations essentially become hypotheses for participants to test, encouraging people to engage in a confirmatory hypothesis search that tilts the scale in favor of forming an impression of a target that is consistent with that hypothesis (Cricher & Dunning, 2009; Duncan, 1976; Langer & Abelson 1974; Lee, Frederick, & Ariely, 2006; Darley & Gross, 1983).

Although we do not plant personal expectations, we do ask people to approach a target with the idea of answering a question for which they have a directional hunch. For example, people do intuit the direction of habituation. When those habituated to a stimulus approach it again with the knowledge they will have to answer how someone viewing the stimulus for the first time would likely respond, they know they are testing the directional hypothesis “What would someone who isn’t tired of this yet see?” Such hypothesis testing should guide the construal and, we hypothesize, participants’ own experience in the process. We call this shift in experience the *vicarious construal effect*.

Although our central idea and focus is that actively considering another’s construal—even when that person likely has a construal that the self once had and likely lost—will shape one’s own experience, we also highlight how the above logic makes bolder predictions. That is, the very property that makes people unlikely to employ this technique spontaneously—their blindness to the power and influence of construal (Ross & Ward, 1995)—may contribute to its power in shaping what feels like a veridical experience. Consider the experience of new parents.

With a vulnerable newborn in their care, they tend to become sensitized to potential threats to their safety. But blind to the power of construal, they explain the additional crime they now observe not to a change in their own perspective on the world but instead to a true increase in danger in the world (Eibach, Libby, & Gilovich, 2003). But in the case of the present research—in which considering a new construal is done more intentionally, following explicit instructions—it is an open question whether people will experience the consequences as reality (i.e., indicative of the true properties of the stimulus or the true preferences of the self) or merely the distorting influence of the manipulation.

In most of our studies, we ask people to consider the experience of someone else as a way to encourage them to adopt another construal. But note that for our purposes, this is mostly just an experimental tool: It is more natural for people to understand that different people have different construals than it is to understand how to try on another construal that resides within the self. In this way, our focus differs from the typical one in the perspective taking or empathy literatures, in which the other person plays a more central role. For example, establishing an empathic connection with another can reduce prejudice toward them (Galinsky & Moskowitz, 2000), enhance cooperation (Batson & Moran, 1999; Batson & Ahmad, 2001), and even elevate altruistic behaviors toward them (Batson, 1991, 1998). Our efforts are quite different from encouraging our participants to bridge an ethnic or partisan divide (Galinsky & Moskowitz, 2000), to appreciate how the factual realities confronting another are distinct from those that face the self to adopt a more charitable perspective of the person (Galinsky, Maddux, Gilin, & White, 2008) or place value on the pain of a person suffering tragedy (Batson, Turk, Shaw, & Klein, 1995). In the present research, the other person is intentionally underspecified and depersonalized. The other is not a humanized soul for whom one acquires concern, but merely an



experimental device. We will ultimately make this point empirically, showing how the presence of the other can be removed from our paradigms altogether.

Although the hypothesized vicarious construal effect would not be a classic perspective taking phenomenon, one lesson from the perspective taking literature does make us pessimistic about its prospects for shaping experience. Relating back to people's blindness to the power of construal, people are largely egocentric in their perspectives (Epley, Keysar, Van Boven, & Gilovich, 2004; Van Boven & Lowenstein, 2003; cf. Epley, Caruso, & Bazerman, 2006). This is apparent even when another's perspective is objectively identifiable—such as the fact that what is on one's left is on a facing person's right (Epley, Morewedge, & Keysar, 2004; Galinsky, Magee, Inesi, & Gruenfeld, 2006; Keysar, Barr, Balin, & Brauner, 2000). Given such egocentrism, why would we have confidence that people can escape the experiential constraints of their own construals by considering another's? What gives us confidence in the veracity of the vicarious construal effect is that in our experiments we encouraged people to adopt an alternative construal *before* (and thus allow this intervention to operate during) the actual experience. Much as people egocentrically have trouble considering a non-egocentric reality after they understand their own present world, we would not predict that trying to consider another's construal would lead one to reconstruct one's *previous* experiences.

## Overview of Studies

Across eleven studies, we test for evidence of the vicarious construal effect and how it operates. We ask whether intentionally trying on an alternative perspective on a stimulus colors one's own experience of the stimulus. Most studies focus on whether the VCE can slow or even stall habituation (Studies 1-6, 8, 10). This offers a particularly conservative context for testing our ideas, because it raises the intriguing possibility that construals one has lost can be appealed

to shape one's present experience. But also, we test whether the VCE can lead to a shift in people's one-time experiences—either by prompting them to preemptively habituate (Study 7) or see and feel what someone who is predisposed to like or dislike a target would see and feel (Studies 9a-9b).

In an effort to explore the generality of the VCE, we test how it operates with regard to a number of experiences: happiness (Study 1), disgust (Study 2), sadness (Studies 3 and 8), engagement (Study 4), awe (Studies 5-6), humor (Studies 7 and 10), and enjoyment (Studies 9a-9b). We attempt to localize the VCE's consequences to the influence of adopting an alternative construal as opposed to alternative mechanisms like self-distancing (Study 3), social contagion (Study 5), or anchoring and adjustment (Study 6). We test a strong form of the VCE, that people accept the influence of adopting alternative construals as veridical—leading people to attribute the influence of the manipulations to the power of the stimulus (Study 8) or their own personal preferences (Studies 9b) instead of to the distorting influence of the manipulation itself. Finally, Study 10 explores whether the VCE comes not merely from pushing people to a different role (e.g., that of a novel viewer of comedy) as opposed to a different construal on a particular stimulus (e.g., that of a novel viewer of *this* comedy). Although various features of our studies are designed to address concerns that participants' self-reported experience may stem from them merely “playing along,” we also report a study that tests whether participants can anticipate the influence of our manipulations.

We were particularly interested in taking multiple steps to achieve sufficient statistical power. One difficulty—faced by much research—is we did not know our effect sizes *a priori*. Recognizing this limitation, Simmons, Simonsohn, and Nelson (2013) recommended studies include at least 50 participants per cell. We decided to go well beyond Simmons et al.'s

recommendations by aiming for at least 100 participants per conditions that were defined by factors of interest (as opposed to counterbalancing factors). That said, we recognized that our studies tested different effects—ones that come from various stimuli, measures, and even experimental conditions. Given this, it meant that even our early studies offered limited information about what effect sizes we could expect in later studies. This led us to focus on *ex ante* stopping rules that had the potential to offer even larger sample sizes than those we set as our minimum threshold. For undergraduate subject pools, we collected data until the end of the semester. For Amazon Mechanical Turk, we collected as many subjects as the funding lab's budget permitted during a month. This approach led us to recruit on average more than 200 participants per condition on average.

### Study 1: Happiness

Study 1 offered an initial test of whether considering a fresh perspective of a stimulus slows habituation. Participants were exposed to a happiness-inducing video clip three times. Before watching it for the third time, some participants were told they had been paired with another participant who was watching the clip for the first time. Those *fresh perspective* participants were asked to consider the other person's first-time perspective on the clip as the participants themselves watched the clip for the third time. By our vicarious construal account, considering the stimulus through fresh eyes should slow one's rate of emotional habituation, leading one to experience the clip with relatively sustained happiness. But by an alternative account, imagining someone seeing the video for the first time may simply highlight to the self its own familiarity with the stimulus. This could make one's own construal feel tired, stale, and emotionally blunted.

### Method

**Participants and design.** Four hundred two participants were recruited from Amazon Mechanical Turk (Mturk) and paid a nominal amount for their participation. Participants were randomly assigned to one of two conditions: *fresh perspective* or *control*. Thirty-six participants were unable to pass an attention check—a simple multiple-choice question asking what they had done in the study—and were excluded from all analyses; thus, all analyses were conducted on the remaining 366 participants. (See the Supplemental Materials for information about the attention check used and the analyses without any exclusions in this and every study.)

**Procedure.** All participants began by watching a 1 min 45 s video that was created from footage that originally appeared on the Canadian television channel Love Nature. The clip documented a baby polar bear learning to walk. We selected the delightful content because we expected it would elicit happiness. After watching the clip, participants were asked to indicate “the extent to which you felt each of the following while watching the video clip” as a measure of their *time 1* emotions. Participants responded on a slider scale anchored at 0 (*not at all*) and 100 (*most I have ever felt*). Crucial on this list of five emotions was “happy.” Confirming the prime applicability of happiness, participants reported experiencing happiness at time 1 more than the other emotions,  $t_s > 3.61$ ,  $p_s < .001$ .

At that point, participants were told, “On the next screen, you will watch and listen to the same video clip for a second time.” Although we did not provide an explanation for why participants were being asked to rewatch the clip, we called attention to the repetition so participants would not think the experiment had malfunctioned. Participants then completed the *time 2* emotion measures—“happy” and the filler measures. Participants then learned they would watch the video clip for a third time.

For those in the fresh perspective condition, we wanted them to consider the video through fresh eyes, even though their habituation to the video may have prompted them to lose their initial, untainted perspective. To accomplish this, we led participants to believe they were being paired with another participant who was about to watch the video for the first time. Participants were informed that after watching the video (now, for the third time), they would try to guess how the other participant responded to the video while watching it for the first time. To enhance the believability of the cover story, participants were told they would have to wait up to 60 seconds for another participant to arrive; after 15 seconds, the screen advanced, ostensibly because another participant had arrived at the video for the first time.

Those in the control condition did not receive information about being paired with another participant. But to equate for the expected and actual time delay, they were told that it would take up to a minute for the next page to load. The screen actually advanced in 15 seconds, just as in the fresh perspective condition. Following the video, all participants reported on their own reaction to the third viewing. To minimize deception, we had all participants estimate how another participant would react to the video while watching it for the first time (just as some participants had been warned they would).

## **Results and Discussion**

Participants reported greater happiness at time 1 ( $M = 77.08$ ,  $SD = 22.71$ ) than time 2 ( $M = 73.08$ ,  $SD = 25.99$ ), demonstrating that participants became habituated to the clip with repeated exposure, paired  $F(1, 365) = 46.53$ ,  $p < .001$ ,  $\eta_p^2 = .11$ . Did the new perspective manipulation slow the rate of subsequent habituation? We conducted a repeated-measures ANOVA to test whether the additional decline in happiness from time 2 time 3 was stunted by the fresh perspective manipulation. The predicted Perspective X Time interaction emerged,  $F(1, 364) =$

6.87,  $p = .009$ ,  $\eta_p^2 = .02$ . As depicted in Figure 1, although participants in the control condition showed a clear decline in happiness ( $M_{T2-T3} = 8.69$ ; paired  $t(177) = 6.80$ ,  $p < .001$ ,  $d = .29$ ), those in the new perspective condition showed an attenuated decline ( $M_{T2-T3} = 3.93$ ; paired  $t(187) = 3.05$ ,  $p = .003$ ,  $d = .15$ ). Stated differently, the new perspective intervention slowed the rate of habituation by 55%.

[Figure 1 here]

By our interpretation, people were able to slow their habituation to a stimulus by trying to see it through fresh eyes. This portrays habituation not as a passive process to which people succumb. Instead, considering alternative construals allows people to actively resist habituation. This should offer pleasant news for those who wish to prolong their enjoyment of stimuli that bring them happiness. What the findings do not address is whether adopting another's perspective slowed habituation, or whether the perspective taking it induced is merely a pleasant task in itself. To unconfound these possibilities, Study 2 tests whether taking a fresh perspective slows habituation to a negative stimulus.

### **Study 2: Disgust**

Study 2 was designed with two goals. First, we tested whether the vicarious construal effect extended to a negative, disgust-inducing stimulus. If adopting a fresh perspective slows habituation, then the intervention should encourage a sustained disgust response. But if adopting another's construal is itself an inherently pleasant endeavor, then it may have no effect or even speed up habituation to an aversive stimulus.

Second, in an effort to provide a stronger test of the robustness of our results, we added a new manipulation that should enhance the speed and perhaps rigidity of participants' habituated construals. On the second viewing of the disgusting stimulus, some participants were encouraged

to engage in cognitive reappraisal—actively reframing an event in order to change the emotion-eliciting impact of the event (Gross, 1998). Given that reappraisal both speeds up and has long-lasting effects for reducing negative emotion reactions (Gross, 1998; Thiruchselvam, Blechert, Sheppes, Rydstrom, & Gross, 2011; Blechert, Wilhelm, Williams, Braams, Jou, & Gross, 2015), it would be notable if adopting a vicarious construal blunts habituation (or even encourages a rebound) among such participants. In other words, the robustness of our effects would be reflected if the Perspective X Time interaction did not further interact with the Reappraisal manipulation.

This hypothesized independence of the vicarious construal effect and emotional reappraisal naturally lends itself to a discussion of their theoretical distinctions as well. One major distinction between the two is reappraisal is an intentional strategy with an emotion-focused goal, typically to reduce the intensity of a negative response (Mauss & Tamir, 2014). In contrast, the vicarious construal effect examines an unintended consequence of considering an alternative construal; in the present paradigm, that instead serves to reintensify an experience. As will become important in later studies that probe the VCE more deeply, it is this quality of being an unintentional effect that ends up giving the experiential consequences more power. That is, we will show people are blind to the power of the manipulation in driving their own experience, emotional and otherwise. In contrast, people reappraise in order to change their emotional experience.

## **Method**

**Participants and design.** We recruited 380 participants from MTurk in exchange for nominal payment. Participants were randomly assigned to one of four conditions in a 2 (perspective: fresh perspective or control) X 2 (reappraisal: reappraisal or control) full-factorial

design. Seventy participants failed an attention check. This left 310 participants in our final sample on which all analyses were conducted.

**Procedure.** All participants began by watching a clip from the 1996 British film *Trainspotting*. In the video, a heroin addict frantically digs through a soiled public toilet in search of dropped drugs. The 2 min 13 s clip has been used in previous research to elicit disgust (e.g., Horberg, Oveis, Keltner, & Cohen, 2009). Following the video, participants saw the same emotion prompt used in Study 1. In this case, the key emotion was “disgusted.” Confirming that disgust was the key emotion elicited, participants reported more disgust at time 1 than they did any other measured emotion,  $t_s > 25.21$ ,  $p_s < .001$ .

Prior to the second exposure, participants in the *reappraisal* condition were instructed to adopt a modified, detached perspective. They received instructions that were somewhat modified from Gross (1998):

“This time, please try to reframe what is happening in the video in a way that allows you to adopt a detached and unemotional attitude as you look at the image. In other words, as you watch the clip, try to think about what you are seeing **objectively**, in terms of the technical aspect of the event you see. Watch the video carefully, but please try to change the way you are thinking about what you are seeing in such a way that you don't feel anything at all.”

Previous research has relied on this instruction to encourage participants to reappraise negative emotional stimuli (Gross, 1998). Following the second exposure, participants reported their time 2 emotions.

Just before the video played a third time, participants in the *fresh perspective* condition were exposed to the same intervention used in Study 1. Following participants' third exposure, they reported their time 3 emotions.



## Results and Discussion

Reflecting habituation, participants felt less disgusted when watching the clip for the second time ( $M = 49.17$ ,  $SD = 36.42$ ) compared to the first time ( $M = 72.50$ ,  $SD = 29.52$ ),  $F(1, 310) = 210.75$ ,  $p < .001$ ,  $\eta_p^2 = .41$ . But also, a significant interaction with the reappraisal manipulation confirmed that the reappraisal manipulation was successful: Participants who distanced themselves from the clip through reappraisal experienced a larger drop in experienced disgust than those who did not receive the reappraisal instructions,  $F(1, 310) = 66.02$ ,  $p < .001$ ,  $\eta_p^2 = .18$ .

Did adopting a fresh perspective of the stimulus slow further habituation to the disgusting clip, and did these results emerge even for those who had already engaged in reappraisal? Or instead, and potentially speaking to the relative weakness of the perspective intervention, might the manipulation work differently for those who had already reappraised versus not? We submitted participants' disgust scores to a 2(time: time 2 or time 3) X 2(reappraisal: reappraisal or control) X 2(perspective: fresh or control) mixed-model ANOVA, with only the first factor manipulated within-subjects. We observed a significant Time X Reappraisal interaction,  $F(1, 307) = 6.57$ ,  $p = .011$ ,  $\eta_p^2 = .02$ , as well as a significant Time X Perspective interaction,  $F(1, 307) = 4.03$ ,  $p = .046$ ,  $\eta_p^2 = .01$ . But the three-way interaction did not approach significance,  $F < 1$ . This reflects that the perspective manipulation operated similarly for those participants who had already distanced themselves from the negative stimulus as well as those who had not, thereby speaking to the robustness of the effect.

But how did the perspective manipulation color participants' reported experience? Providing strong support for the vicarious construal account, adopting a fresh perspective completely curbed further habituation to the stimulus (see Figure 2). Although participants in the

control perspective condition experienced a continued decline from time 2 to time 3 in their reported disgust ( $M_{T2-T3} = 4.18$ ; paired  $t(153) = 2.32, p = .022, d = .11$ ), participants in the fresh perspective condition actually showed a non-significant uptick in disgust ( $M_{T2-T3} = -1.13$ ; paired  $t < 1, d = -.03$ ). These results contradict the possibility that adopting another's perspective is merely an enjoyable activity that improves one's emotional state. Instead, these findings show that adopting a fresh perspective slows—or in this case, eliminates—habituation for positive and negative stimuli, alike. These findings emerged regardless of whether people had already distanced themselves from the stimuli through cognitive reappraisal, speaking to the robustness of the VCE.

[Figure 2 here]

### Study 3: Sadness

Study 3 built on our previous studies in two ways. First, we explored the influence of our fresh perspective manipulation using a new stimulus and a new emotion, sadness. Second, we offered a more conservative test of the vicarious construal effect that had the potential to rule out another alternative explanation. By our vicarious construal reasoning, trying to adopt the construal of a first-time viewer helps one to curtail further habituation by pushing one toward experiencing a stimulus anew. But by an alternative explanation, it is not adopting another's *fresh* perspective that stems habituation, but merely adopting *another's* perspective that does the trick. That is, taking the perspective of another might encourage people to take a more global or abstract perspective of the stimulus (Trope & Liberman, 2010). Previous research has shown that those processing the world more abstractly attend and respond more to highly affective stimuli (Critcher & Ferguson, 2011). To disentangle these two accounts, we added a third condition in which participants were asked to consider the perspective of another participant who was also

watching the video for the third time. According to the vicarious construal account, this new *stale perspective* intervention would not be expected to influence responding given it does not encourage participants to construe the task through fresh eyes. But if merely adopting another's perspective is sufficient to curb habituation, then both perspective conditions should be effective in maintaining a person's sad response to the stimulus.

## Method

**Participants and design.** Three hundred ninety-four participants were recruited from MTurk and paid a nominal amount for their participation. Participants were randomly assigned to one of three perspective conditions: fresh perspective, stale perspective, or control. Eighty-nine participants failed at least one of two attention checks. This left 305 participants in all analyses reported below.

**Procedure.** To begin, all participants watched the climactic scene from the 2008 film *Marley & Me*. The film chronicles the life of Marley, an unruly Labrador who ultimately endears himself to his owners, occupying an indispensable role in their family. The 2 min 47 s clip shows John Grogan (Owen Wilson), the owner of Marley, holding his dog as he is euthanized. Participants saw the same emotion prompt used in the previous studies after their first viewing of the clip. Of central interest was the emotion "sad." Confirming its centrality, participants reported significantly greater sadness following the first viewing than they did any other emotion,  $t_s > 25.14$ ,  $p_s < .001$ .

Next, participants saw the clip again and reported their time 2 emotions. Finally, participants went through one of three perspective interventions. Participants in the fresh perspective and control conditions saw similar instructions to those used in the previous studies. Participants in the stale perspective condition were told that they were being matched with

another participant, but one who would be watching the video for the third time. Like those in the fresh perspective condition, stale perspective participants were told to consider how the participant with whom they were paired was experiencing the video while watching it. At the conclusion of the clip, participants indicated their own emotional responses before estimating those of another participant.

## Results and Discussion

Showing that participants became habituated to the sad clip, participants reported feeling less sadness after watching *Marley & Me* for the second time ( $M = 70.65$ ,  $SD = 29.90$ ) compared to the first time ( $M = 77.49$ ,  $SD = 26.86$ ),  $F(1, 304) = 37.57$ ,  $p < .001$ ,  $\eta_p^2 = .11$ . To test whether the perspective manipulations changed how much additional habituation participants experienced, we submitted participants' reported sadness to a 2(time: time 2 or time 3) X 3(perspective: fresh, stale, or control) mixed-model ANOVA, with only the first factor measured within-subjects. As expected, the Time X Perspective interaction was significant,  $F(2, 302) = 12.06$ ,  $p < .001$ ,  $\eta_p^2 = .07$ . To understand the nature of the interaction, we proceeded to test a series of 2(time: time 2 and time 3) X 2(perspective) interactions (see Figure 3).

Conceptually replicating the findings from Studies 1 and 2, participants showed stunted habituation in the fresh perspective compared to the control condition,  $F(1, 225) = 22.53$ ,  $p < .001$ ,  $\eta_p^2 = .09$ . Whereas participants in the control condition showed a decline in sadness from time 2 to time 3 ( $M_{T2-T3} = 10.14$ ,  $SD = 16.48$ ; paired  $t(120) = 6.77$ ,  $p < .001$ ,  $d = .33$ ), those in the fresh perspective condition showed a non-significant uptick in sadness ( $M_{T2-T3} = -1.08$ ,  $SD = 19.15$ ; paired  $t < 1$ ,  $d = -.03$ ). To distinguish between our competing hypotheses, we next tested the influence of the stale perspective manipulation. Suggesting that considering another's construal was not sufficient to slow habituation, participants in the stale perspective condition

showed a similarly sized decline from time 2 to time 3 in sadness ( $M_{T2-T3} = 8.63$ ,  $SD = 19.13$ ; paired  $t(77) = 3.98$ ,  $p < .001$ ,  $d = .29$ ) as those in the control condition,  $F < 1$ . Establishing most directly the importance of whose perspective was being considered, habituation occurred more quickly in the stale than in the fresh perspective condition,  $F(1, 182) = 11.57$ ,  $p = .001$ ,  $\eta_p^2 = .06$ .

[Figure 3 here]

#### Study 4: TED Talk

Study 4 built on our previous results in two ways. First, whereas our previous studies examined how vicarious construals slowed emotional habituation, Study 4 moved to a different sort of stimulus evaluation. Participants in Study 4 watched the second-most-watched TED Talk: Amy Cuddy's "Your Body Language Shapes Who You Are." But there is a reason academics do not deliver the (exact) same conference talk every year: Engagement and fascination thrive on novelty (Bradley, Lang, & Cuthbert, 1993). We asked whether the fresh perspective manipulation could sustain interest in the repeatedly presented talk.

Second, although Study 3 established the importance of whose vicarious perspective one adopts, our previous studies have confounded what the imagined other is experiencing (i.e., a first look at a stimulus) with when such experience is likely occurring. That is, our previous participants were led to believe they had been matched with a participant who was being exposed to the stimulus for the first time *while* the participant was watching it for the third. We included this staged simultaneity of experience not because it is crucial to our logic, but because we thought it would make the experimental manipulation more vivid. But by an alternative explanation, it is this simultaneity of the other's fresh response—not the fresh construal that it prompts—that is blunting habituation. We added a *future fresh perspective* condition in Study 4 to disentangle these possibilities. More specifically, these participants were told that they would

predict the response of a future participant who would watch the video for the first time tomorrow. We expected that this future fresh perspective position would sustain interest at the same rate as the (concurrently-experienced) fresh perspective condition. If the future fresh perspective manipulation failed to have this effect, it would call into question our interpretation that the intervention assisted in encouraging a refreshed construal of the event.

## Method

**Participants and design.** Given this study moved to a new type of dependent measure, we felt it best to try to achieve a larger sample size given added uncertainty about the effect size. We recruited 1,073 participants simultaneously from MTurk as well as undergraduate subject pools at a private and a public American university. MTurk participants were paid a nominal amount for their participation, whereas the university students received course credit. Participants were randomly assigned to one of three conditions: (concurrent) fresh perspective, future fresh perspective, or (concurrent) stale perspective. Two hundred fifty-one participants failed to answer the attention check correctly, leaving a total of 822 participants for all analyses reported below.

**Procedure.** All participants began by watching an edited version of psychologist Amy Cuddy's Ted Talk "Your Body Language Shapes Who You are." Although the entire talk lasted approximately 21 minutes, we spliced together a 2 min 51 s clip that features Cuddy discussing her own research on power poses. These edits removed some of Cuddy's more personal anecdotes, thereby focusing on the research results that many find incredibly fascinating. After the first exposure, participants were given the prompt: "Consider your experience watching the video just now. While watching the video, I found it to be..." They responded to interesting, engaging, and fascinating. We averaged responses to form a time 1 *interest* composite ( $\alpha = .93$ ).

Next, participants watched the clip for a second time and then again responded to the interest measures. This time 2 interest composite also had high internal reliability ( $\alpha = .96$ ). Before exposing participants to the clip for the third time, participants in the two concurrent conditions—both fresh and stale—received interventions much like we used before. But participants in the new future fresh perspective condition were not led to believe they were being paired with another participant in the moment, but that they would have to predict the experience of a future participant who would watch the clip for the first time. These future fresh perspective participants experienced the same 15 second “loading screen” delay that we had used with those in previous control conditions; this controlled for the time it took for participants in the other two conditions to (supposedly) be paired with a live other. Following the third video exposure, participants completed the time 3 interest composite ( $\alpha = .97$ ).

## Results and Discussion

Showing that repeated exposure produces not only emotional habituation but also a decline in engagement, participants' interest dropped from time 1 ( $M = 70.01$ ,  $SD = 23.08$ ) to time 2 ( $M = 54.72$ ,  $SD = 28.37$ ),  $F(1, 816) = 512.78$ ,  $p < .001$ ,  $\eta_p^2 = .39$ . To determine whether our perspective manipulation had an effect on whether participants sustained interest in a fascinating stimulus, we submitted the interest composite to a 2(time: time 2 or time 3)  $\times$  3(perspective: fresh, stale, future fresh) mixed-model ANOVA, with only the first factor measured within-subjects. Suggesting the manipulation did affect how much participants' interest continued to diminish, the Time  $\times$  Perspective interaction was significant,  $F(2, 819) = 22.72$ ,  $p < .001$  (see Figure 4). To understand the nature of this interaction, we conducted a series of 2(time)  $\times$  2(perspective) ANOVAs.

Mirroring a pattern we have observed before, participants who watched Cuddy's video for the third time knowing their paired concurrent participant was watching it for the first time showed a smaller additional decline in interest ( $M_{T2-T3} = 10.82$ ,  $SD = 18.70$ ; paired  $t(311) = 10.22$ ,  $p < .001$ ,  $d = .37$ ) than those told their paired concurrent participant was watching it for the third time ( $M_{T2-T3} = 16.83$ ,  $SD = 16.67$ ; paired  $t(220) = 15.01$ ,  $p < .001$ ,  $d = .59$ ),  $F(1, 535) = 15.19$ ,  $p < .001$ ,  $\eta_p^2 = .03$ . Although this difference shows that the influence of the vicarious fresh perspective is not merely attributable to considering the construal of another, it remains unclear whether participants are responding to the (imagined) concurrent experience of another. To determine whether the simultaneity of experience contributes to our effects, we examined whether participants showed sustained interest in the clip even when considering the first viewing of a future participant. Showing participants were responding to the other participant's construal, not the timing of when such construal would occur, future fresh perspective participants showed a relatively small decline in interest ( $M_{T2-T3} = 5.65$ ,  $SD = 20.62$ ; paired  $t(279) = 4.58$ ,  $p < .001$ ,  $d = .18$ ). This decline was smaller than those considering another's concurrent stale perspective,  $F(1, 499) = 42.90$ ,  $p < .001$ ,  $\eta_p^2 = .08$ . Unexpectedly, the future fresh perspective manipulation slowed habituation even more effectively than those considering a concurrent fresh perspective,  $F(1, 590) = 10.26$ ,  $p = .001$ ,  $\eta_p^2 = .02$ . Although this final effect was not predicted (nor do we have a reasonable post hoc explanation for it), it makes it clear that the fresh perspective stems from the nature, not the timing, of the other's experience.

[Figure 4 here]

### **Study 5: Awe, Through One's Own (Previous) Eyes**

In our previous studies, we asked participants to consider the experience of someone *else* who was experiencing a stimulus for the first time. But if people can re-experience a stimulus by



trying to see it through fresh eyes, is it truly necessary that they try to observe it through someone *else's* fresh eyes, instead of through their own? In our earlier studies, we made this methodological decision for three reasons. First, we wanted to use a manipulation that would encourage participants to try to adopt another construal, but wanted to disguise our true interest in the study. That is, although we framed our interest as being in participants' ability to predict the experience of another, we were ultimately interested in a different DV: participants' own experience. Second, we worried that participants might have a hard time reassessing their own initial construal of a stimulus (Campbell, Van Boven, Schwarz, & Ubel, 2014). We thought that attempting to see the stimulus through another's eyes might make it simpler to retrieve an already-lost construal. Third, we worried that if participants were told they would have to report on their own initial experience with the stimulus, they might not try to see the stimulus through fresh eyes, but instead know that they could merely report from memory the responses they had made minutes earlier.

Despite these concerns, we also recognized that showing that participants would show similar effects when trying to view stimuli through their own formerly fresh eyes would allow us to address an alternative explanation. One worry is that the vicarious construal effect reflects a sort of contagion instead of the consequences of accessing a different construal. That is, people may be especially happy, sad, or disgusted not because they view a stimulus differently, but because those emotions are inspired by considering someone else who is especially happy, sad, or disgusted. Two features of Study 4 made the contagion account a priori suspect. First, it seems less well suited to account for those effects on interest in a stimulus (instead of an emotional reaction to it). Second, we found that the manipulation worked as strongly (and in fact, more strongly) when the other had yet to experience the stimulus. It seems unusual that another's

experience would be contagious when it had yet to occur. That said, one way to sidestep this issue empirically is to eliminate the other from the intervention altogether.

In Study 5, we added a new *own fresh* perspective condition, in which participants were told before watching a video for the third time that afterward they would need to report how they themselves responded to the video when watching it for the first time. We explained that this meant they should try to consider that initial perspective while watching the video. If participants had truly lost their own initial construal, or if our earlier effects stemmed from people's delight or dismay at someone else's novel exposure to a stimulus, then this intervention should not curb further habituation. But if participants can try on new construals and experience a stimulus through (fresher) eyes, then even this own fresh perspective should curb habituation. Whether one's own fresh perspective curbs habituation to the same extent as our typical (other's) fresh perspective condition will depend on whether our alternative hypotheses produce some of the vicarious construal effect—regardless of whether they are sufficient to account for it. Furthermore, we aimed to replicate our findings using stimuli that elicited a new emotional response: awe.

## Method

**Participants and design.** Four hundred sixty-six participants from MTurk completed the study for nominal payment. Participants were randomly assigned to one of three perspective conditions: *other's fresh* perspective, *self's fresh* perspective, or a no-intervention *control* condition. One hundred thirty-three participants responded incorrectly to an attention check. This left 333 participants in our final sample on which all analyses were conducted.

**Procedure.** All participants began by watching an awe-inducing clip from the BBC's "Planet Earth" mini-series. This 2 min 36 s compilation of scenes from the mini-series has been

used in previous research to elicit awe (Critcher & Lee, in press; Piff, Dietze, Feinberg, Stancato, & Keltner, 2015; Valdesolo & Graham, 2014). The video features bird's-eye views of some of the world's most magnificent landscapes, accompanied by inspiring background music. After the first exposure to the video clip, participants were given the prompt: "Consider your experience watching the video just now. While watching the video, I found it to be..." They responded to awe-inspiring and inspirational. We averaged responses to form a time 1 *awe* composite ( $r = .66$ ).

Participants then watched the clip again and rated their experience using the same awe measures. The time 2 composite also had high reliability ( $r = .74$ ). Prior to watching the clip a third time, participants in the two fresh perspective conditions—both self's and other's--received special instructions. Those in the other's fresh perspective condition received instructions very much like those used in the previous study's future fresh perspective condition. Namely, participants were told that after their third time watching the video, they would have to judge how someone in the future watching the video for the first time would respond to the video. To encourage participants to adopt this construal, we asked them to be mindful of this while watching the video. Those in the new *self's fresh* perspective condition were warned they would be asked to report on how they themselves had responded to the clip the first time it had been viewed. Those in the control condition did not receive special instructions before the third viewing. Immediately following the third video exposure (but before reporting on another's or their own former responses), participants completed the time 3 awe composite ( $r = .84$ ).

## Results and Discussion

Showing that repeated exposure to the clip reduced participants' reported experience of awe, we observed a significant decline from time 1 ( $M = 82.05$ ,  $SD = 18.58$ ) to time 2 ( $M =$

77.88,  $SD = 21.27$ ),  $F(1, 332) = 41.88, p < .001, \eta_p^2 = .11$ ). To assess whether the perspective manipulation had an effect on how much participants sustained their awe response on the third viewing, we submitted the awe composite to a 2(time: time 2 vs. time 3)  $\times$  3(perspective: other's fresh, self's fresh, control) mixed-model ANOVA, with only the first factor measured within-subjects. A significant Time  $\times$  Perspective interaction showed that the manipulation did change participants' rate of further habituation,  $F(2, 330) = 8.75, p < .001, \eta_p^2 = .09$ . To unpack the interaction, we conducted a series of 2(time)  $\times$  2(perspective) ANOVAs (see Figure 5).

As we observed in previous studies, participants who watched the Planet Earth video for the third time knowing their paired participant was watching it for the first time showed a smaller additional decline in awe ( $M_{T2-T3} = 1.28, SD = 17.75$ ; paired  $t(93) = .70, p = .49, d = .06$ ) compared to those in the control condition ( $M_{T2-T3} = 10.59, SD = 19.68$ ; paired  $t(124) = 6.02, p < .001, d = .43$ ),  $F(1, 311) = 16.29, p < .001, \eta_p^2 = .05$ . We also found that participants considering their own fresh perspective showed a smaller decline in awe ( $M_{T2-T3} = 4.13, SD = 12.98$ ;  $t(113) = 3.40, p = .001, d = .18$ ) than those in the control condition watching it for the third time,  $F(1, 237) = 8.82, p < .01, \eta_p^2 = .04$ . Suggesting that the vicarious construal effect is driven by actively adopting a fresh construal, as opposed to the social process of emotional contagion, the rate of habituation was similar in the self's and other's fresh perspective conditions,  $F(1, 206) = 1.78, p = .18, \eta_p^2 = .01$ , suggesting that the path to curbing habituation is not limited to considering social construals.

[Figure 5 here]

### **Study 6. Anchoring and Adjusting from Estimated Others' Responses**

We have argued that adopting a vicarious construal—even one had but seemingly lost—changes how one subsequently experiences a stimulus. But two alternative possibilities remain.

First, perhaps people report enjoying an experience more simply because they were led to consider a novel response to the stimulus before reporting their own response. Second, and relatedly, by an anchoring and adjustment account, participants in the fresh perspective condition may have been focusing on another person's strong (initial) response to the stimulus, from which they then adjusted (insufficiently) when stating their own enjoyment. These alternatives speak to related alternative mechanisms—that the perspective manipulation does not modify subsequent construal, but changes people's interpretation or reporting of their stimulus response.

To address both concerns, we varied whether participants were asked to consider the novel experience of another before (and while) being exposed to the stimulus for a third time, or after this final exposure (but before rating their own final experience). If the previously documented vicarious construal effect is merely driven by anchoring and adjustment, or a boost to one's own memory for one's enjoyment that comes from considering a novel response to the stimulus, then both manipulations should curb habituation to a similar extent. If instead considering a *live* experience through different eyes is what is responsible for changing one's own reaction, then we should observe more of a stunting in habituation in our classic fresh perspective condition than in our new *post-hoc* (fresh) *perspective* condition.

## Method

**Participants and design.** We recruited 413 participants from MTurk in exchange for nominal payment. Participants were randomly assigned to our classic *pre-exposure* fresh perspective or the new *post-hoc* fresh perspective condition. One hundred three participants were unable to pass the attention check and were excluded from all analyses. The final sample included 310 participants.

**Procedure.** All participants began by watching the same awe-inducing clip from the BBC's "Planet Earth" mini-series used in Study 5. After watching the clip, they indicated how awe-inspiring and inspirational they found the clip to be on a 0 (not at all) to 100 (extremely so) sliding bar scale. We created a time 1 *awe* composite by averaging responses ( $r = .76$ ).

Participants then watched the clip for the second time and rated their experience on the same awe measures. The time 2 composite also had high reliability ( $r = .80$ ). Before watching the clip for a third time, participants in the fresh perspective condition were informed they would have to make an estimate after they watched the clip: how the next would respond when viewing the clip for the first time. Those in the post-hoc fresh perspective condition received no instructions before the third viewing. Immediately after their third viewing of the clip, all participants first reported how they thought the next participant would report their experience when watching the video for the first time. They made these estimates using the same two awe measures ( $r = .76$ ). Finally, participants reported their own experience watching the clip for the third time on the same two-item awe measure ( $r = .86$ ).

## Results and Discussion

Demonstrating that habituation occurred upon repeated exposure, the intensity of participants' awe responses declined from time 1 ( $M = 81.07$ ,  $SD = 20.77$ ) to time 2 ( $M = 76.84$ ,  $SD = 23.64$ ),  $F(1,309) = 34.67$ ,  $p < .001$ ,  $\eta_p^2 = .10$ . But did our pre-exposure fresh perspective manipulation (i.e., our intervention used across most of our studies) curb habituation compared to the new manipulation that anchored participants on a fresh perspective post-hoc? We submitted the awe composite to a 2(time: time 2 or time 3) X 2(fresh perspective: pre-experience or *post hoc*) mixed-model ANOVA, with only the first factor measured within-subjects. A

significant Time X Perspective interaction confirmed our hypotheses,  $F(1, 308) = 5.94, p = .015$ ,  $\eta_p^2 = .02$  (see Figure 6).

Participants in our new post-hoc fresh perspective manipulation showed a significant decline in awe from time 2 to time 3 ( $M_{T2-T3} = 9.12, SD = 17.19$ ; paired  $t(141) = 6.32, p < .001, d = .36$ ). But participants in our classic pre-exposure fresh perspective did show reduced, though still significant, habituation ( $M_{T2-T3} = 4.65, SD = 15.07$ ; paired  $t(167) = 4.00, p < .001, d = .18$ ). That is, even though participants in the *post hoc* condition had been anchored on the perceived experience of the other participant just before stating their own time 3 experience, they showed a stronger diminishment in their self-reported awe response. In other words, the vicarious construal effect seems to stem from the influence of the manipulation on people's subsequent interpretation of the stimulus, not merely on their being anchored to a high estimate of the yoked participant's likely reaction.

[Figure 6 here]

### Study 7: Preemptive Habituation

In the previous studies, participants were able to partially recapture a construal they once had, but had since lost. That perspectives can be rejuvenated may seem especially impressive, because it suggests that perspective that would be seemingly lost can be volitionally rediscovered. On the other hand, this might suggest a limit to the vicarious construal effect. That is, might people be able to volitionally adopt a construal only because they themselves had once possessed it? Or instead, does willing a novel construal of a stimulus permit one to experience it in a way that one never has before. The next three studies distinguish between these two possibilities.

In Study 7, participants were encouraged to take the perspective of someone experiencing a stimulus for the first time or the third time. Although some participants received these instructions before being exposed to a stimulus for the third time, others received this manipulation before their first exposure. If vicarious construal can help participants only to recover a previous construal, we should find that the manipulation has an effect when it precedes the third viewing (given the fresh perspective manipulation encourages participants to access a previously experienced construal) but not when it precedes the first viewing (given the stale perspective manipulation suggests a construal that has yet to be experienced). If instead people can volitionally see stimuli through novel eyes and not merely their former ones, we should observe two main effects: one of time (reflecting habituation) and one of perspective (with the fresh perspective encouraging a stronger response than the stale perspective manipulation). Furthermore, we expand on our previous studies by testing our hypotheses in the context of a new experiential dimension: humor.

## **Method**

**Participants and design.** Six hundred twenty-three participants from Mturk participated for a nominal amount. Participants were randomly assigned to one of four conditions in a 2 (perspective: fresh or stale) X 2 (intervention: first exposure or third exposure) full-factorial design. Due to a programming error, half of participants did not see the attention check item. For this reason, no participants were excluded except one participant who indicated the video did not play on his or her computer.

**Procedure.** To begin, participants were asked to clear their minds. Participants were given 30 seconds to do this. We hoped this would put participants in a similar, calm state. For the focal part of the experiment, participants were exposed to a 2 min 21 sec clip from the improv



comedy show *Whose Line Is it Anyway?* Those in the first exposure intervention condition saw the clip only once; the fresh or stale perspective manipulation was delivered in advance of this single exposure. Those in the third exposure intervention condition saw the clip three times. As before, one of the two perspective manipulations was delivered in advance of the third and final exposure. Following each exposure to the video, participants indicated how *amusing*, *entertaining*, and *humorous* they found the clip to be. Responses were made on a 101-point slider scale anchored at 0 (*not at all*) and 100 (*extremely so*). This humor composite was reliable at time 1 ( $\alpha = .95$ ), time 2 ( $\alpha = .97$ ), and time 3 ( $\alpha = .99$ ).

To test our main hypotheses, we would not be able to test whether the rate of habituation changed (given participants in the first exposure condition would not have already seen the stimulus). As such, all participants—after clearing their mind but before watching the focal clip—saw a different baseline clip from *Whose Line Is it Anyway?* After watching this 2 min 30 sec clip, participants completed the same humor composite used for the focal target clip ( $\alpha = .95$ ). Given these ratings offered one baseline indication of how funny participants found the show to be, we used these scores as a covariate in our main analyses.

## Results and Discussion

To understand whether the fresh and stale perspective manipulations influenced those watching the humorous clip differently for the first or third times, we performed a 2(perspective: fresh or stale)  $\times$  2(intervention: first or third exposure) ANCOVA on the relevant humor composites. For those who received the intervention before the first or third exposure, the relevant composite was Time 1 or Time 3, respectively. And indeed, humor ratings of the baseline clip predicted significant variance in the ANCOVA,  $F(1, 617) = 307.24, p < .001, \eta_p^2 = .33$ .

Demonstrating between-subjects that participants habituate with additional exposure, those in the time 3 intervention condition ( $M = 59.13$ ,  $SD = 23.91$ ) found the clip less humorous than those in the time 1 condition ( $M = 64.09$ ,  $SD = 23.25$ ),  $F(1, 617) = 33.61$ ,  $p < .001$ ,  $\eta_p^2 = .05$ . But also, we found a main effect of perspective demonstrating that fresh participants—those paired with another who was watching the clip for the first time—had a stronger humor response toward the stimulus ( $M = 67.09$ ,  $SD = 23.56$ ) than those paired with someone who had already been exposed to the clip multiple times ( $M = 56.13$ ,  $SD = 23.59$ ),  $F(1, 617) = 6.88$ ,  $p = .009$ ,  $\eta_p^2 = .01$ . Demonstrating that the vicarious construal effect reflects the influence of adopting another's novel construal, even if one has not previously experienced that construal, the Perspective X Intervention interaction was not significant,  $F < 1$ . That is, the perspective manipulation had a similarly sized effect regardless of whether it was administered before the third exposure (when the fresh perspective was a return to the past) or the first exposure (when the stale perspective was yet to be genuinely experienced) (see Figure 7).

[Figure 7 here]

#### **Study 8: Does the VCE make the stimulus (or just the manipulation) seem more intense?**

In testing the VCE, we have relied on participants' self-reported experience. Is it possible that participants in our fresh perspective conditions reported having a more intense response despite not actually experiencing one? One form of this concern is that our studies reflect a demand artifact. Although we address this issue further with additional data reported in the General Discussion, we consider now the idea that participants may be simply “playing along”—reporting a more intense experience because they believe the fresh perspective manipulation asks them to simulate one. Second, and relatedly, even if the fresh perspective manipulation does help people to become resensitized to a stimulus, do participants (accurately) attribute this

resensitization to the manipulation? By our reasoning, the vicarious construal effect produces real changes in people's experience, but people's blindness to the power of construal in defining experience leads people to interpret such changes as veridical—properties of the stimulus or one's own preferences—not the interference of the manipulation itself.

Study 8 addresses both concerns. Participants watched the sad clip used in Study 3 three times. Instead of testing how the fresh perspective or a control manipulation influenced participants' own experience, we asked participants to guess how the average participant—someone who watched the clip three times in a row with no other instructions—would find the clip on the third viewing. If fresh perspective participants truly felt sadder, and failed to fully appreciate how that elevated sadness was a reflection of the manipulation and not merely a response to the sadness of the stimulus itself, then such participants should project that more intense emotional experience onto the (average participant) target. If instead fresh perspective participants did not feel sad, or they recognized they felt sadder only because the fresh perspective manipulation had distorted their experience, then they should not estimate that an untreated other would find the clip sadder on the third viewing.

## Method

**Participants and design.** Nine hundred seventy-two people were recruited from a mix of populations: an undergraduate subject pool at a private American university, an undergraduate subject pool at a public American university, and Americans from MTurk. Participants were randomly assigned to a fresh perspective or control condition. Eighty participants failed a single attention check that asked what question they answered in the study. This left 892 participants in all analyses reported below.

**Procedure.** Participants watched the same sad clip used in Study 3. The clip was from *Marley & Me* and depicted the euthanization of a dog, interspersed with flashbacks from his life. Following the first viewing, participants reported “the extent to which you felt each of the following while watching the video clip.” Crucial among the five items was *sad*.

Next, participants watched the clip for the second time, but in this case did not make a judgment following the second viewing. At that point, participants’ experience varied by condition. Those in the *fresh perspective* condition were told that they would have to report how the next participant would respond to the video when watching it for the first time. Those in the control condition were warned that they would have to report their own experience watching the video for the third time.

But instead of answering the question that had been foreshadowed, all participants were asked to first answer a different question. That is, we told them:

“Before we asked you the question we notified you about earlier... Consider the average participant in this study. If that person were to watch the clip three times in a row (with no other instructions), how do you think they would respond when they watched the clip for the third time?”

Participants saw the five emotion items used earlier; again, crucial on the list was “sad.” At that point, participants answered the question they had been told earlier they would eventually answer.

## **Results and Discussion**

To control for individual differences in how sad participants found the clip, we used participants’ Time 1 sadness ratings as a covariate. We submitted to an ANCOVA participants’ estimates of how sad an untreated other would find the clip on the third viewing. Consistent with

our hypotheses, those in the fresh perspective condition thought the clip was legitimately sadder on its third viewing. That is, those who watched the video a third time from a fresh perspective thought an untreated other would find the video sadder on the third viewing ( $M = 64.78$ ,  $SE = 1.35$ ) than did those in the control condition ( $M = 59.82$ ,  $SE = 1.35$ ),  $F(1, 889) = 6.72$ ,  $p = .010$ ,  $\eta_p^2 = .01$ .

These results not only bolster our interpretation that fresh perspective participants felt sadder while viewing the clip for the third time, but support that participants failed to fully appreciate the manipulation's role in that experience. If participants were simply “playing along” and saying they felt sadder because the manipulation prompted them to consider how someone who was especially sad would respond, it is unclear why they would estimate that an untreated other would find the clip to be particularly sad. Our results are consistent with our contention that participants were blind to the power of construal—remarkably, even a construal that they intentionally adopted—in shaping their own experience. Participants attributed their elevated sadness to the power of the stimulus, not to the power of the consideration of another's construal.

### **Study 9a: Enjoyment**

To this point, we have tested for evidence of the vicarious construal effect by varying the extent to which participants themselves had habituated to a stimulus, as well as the extent to which the participant whose perspective they were predicting had habituated. Whereas Studies 1-5 showed people could (partially) recover a fresh construal, even once their actual experience had become stale, Study 7 showed participants could preemptively achieve a (stale) perspective that they had yet to achieve naturally. Study 8 showed that participants were blind to the power

of construal and attributed the change in their experience to the stimulus, not to the vicarious construal manipulation.

Study 9a attempted to move into qualitatively new territory by asking whether participants would be influenced by vicarious construals that they would never have spontaneously. In Study 9a, all participants watched a movie clip from a Japanese anime film. But participants were led to believe they had been paired with a participant who had a particular affinity for or aversion to the genre. In this way, we ask whether someone who tries to see what an anime aficionado might love, or what a nonfan might detest, may emerge from the experience with their own enjoyment colored.

In our previous studies, participants always noted their own experience before making their judgments of how the yoked participants likely did or would respond. Because participants who were asked to consider another's perspective had been told before their last exposure to the stimulus that they would be judging someone else's experience, it may have been quite the surprise that this foreshadowed question was not what participants first saw following the video. Perhaps participants' consideration of another's experience colored reporting of their own experience only because participants were actively trying to hold that social judgment in mind, which colored participants' self-ratings. This is a possible Zeigarnik effect of sorts (Zeigarnik, 1935): Before participants had the opportunity to offer the judgment they were prepared to give, it may have exerted an assimilative pull on other judgments. Or more simply, perhaps some participants answered the wrong question—providing their social estimate when they were supposed to offer a report of their own experience. To address both worries, we varied the order in which participants offered their self-reported experience and their estimates of the yoked participant. By these alternative accounts, the vicarious construal effect should emerge more

strongly when participants report their own experience before (compared to after) they made their social estimates.

## Method

**Participants and design.** Three hundred nine participants were recruited from MTurk and paid a nominal amount for their participation. Participants were randomly assigned to one of four conditions in a 2 (perspective: likes genre or dislikes genre) X 2 (order: self-reported enjoyment first or social estimate first) full-factorial design. Sixty-four participants failed an attention check. This left 245 participants for all analyses reported below.

**Procedure.** To begin, participants saw the names of ten different genres of film. They were asked to indicate how much they “like (or think you would like) watching TV/films in each of the following genres.” Participants responded on 10-point scales anchored at 1(*do not like at all*) and 10 (*like very much*). Crucial on this list was “Japanese anime.”

All participants were told that they would watch an excerpt from the Japanese anime TV series *Terror in Resonance*. The series aired on Japanese television in 2014. To make the clip interpretable to our American participants, we provided English subtitles.

Before the film began, participants learned they would have to predict the experience of a future participant who had not seen this clip before. Participants were given one piece of information about this person, their response on the Japanese anime scale item that participants themselves had answered before. Those in the “likes genre” condition saw that the other participant indicated a 9, whereas those in the dislike genre saw that the other participant indicated a 2. At that point, participants watched the 1 min. 45 sec. clip.

Next, participants indicated their own enjoyment of the clip and the estimated enjoyment of their yoked participant in one of the two possible orders. Participants characterized their own

experience on three items ( $\alpha = .99$ ): “I enjoyed it,” “I liked it,” and “I found it entertaining.” Responses were made on 101-point slider scales anchored at 0 (*not at all*) and 100 (*extremely so*). Participants estimated the future participant’s experience by responding to the same three prompts, but concerning the yoked participant’s enjoyment ( $\alpha = .99$ ).

## Results and Discussion

To determine whether considering the perspective of an anime fan or nonfan changed one’s own enjoyment of the clip, we submitted participants’ own enjoyment composites to a 2(perspective: likes genre or dislikes genre) X 2(order: self-reported enjoyment first or social estimate first) ANCOVA. Participants’ baseline liking for Japanese anime served as a covariate. Unsurprisingly, the covariate accounted for significant variance in participants’ self-reported liking for the clip,  $F(1, 240) = 109.92, p < .001, \eta_p^2 = .31$ . But consistent with our central hypothesis, we observed a significant main effect of the perspective manipulation,  $F(1, 240) = 9.91, p = .002, \eta_p^2 = .04$ . Participants preparing to predict the experience of someone who likes anime found the clip to be more enjoyable themselves ( $M = 57.41, SD = 26.72$ ) compared with those considering the perspective of someone who does not like the genre ( $M = 46.54, SD = 27.27$ ). Addressing the artifactual alternative accounts, the order did not moderate these results,  $F < 1$  (see Figure 8A). In summary, the vicarious construal effect did not merely allow participants to have experiences that they previously or would soon (with repeated exposures) have. Instead, it allowed participants to experience stimuli through a lens they would not ordinarily possess.

[Figure 8 here]

## Study 9b: Learning About Oneself by Trying to Understand Others



In our previous studies, our primary dependent measure was participants' self-reported experience of a stimulus. We showed that trying to see how someone else would response to a stimulus had consequences for one's own interpretation of the stimulus. By our argument, trying to see the stimulus through another's eyes gave participants a different perspective by which to see the stimulus for themselves. For example, we predict Study 9a's participants attributed their enjoyment of the clip to their basic preferences for the stimulus itself, not their sense that the manipulation was a trick that distorted their true understanding of the clip. But by a weaker interpretation, the perspective-taking manipulation may have changed participants' experience without modifying participants' *true* assessment of the stimulus. That is, Study 9a participants may have experienced the anime as more (vs. less) enjoyable when trying to determine what someone who does (vs. does not) like anime would see, but they may have attributed this influence to the manipulation, not their fundamental liking for the stimulus itself.

Study 9b attempted to replicate the results of Study 9a. Although we used a different film clip to test the robustness of our results, we again tested whether those considering the perspective of someone who likes the genre enjoyed the clip more than those considering the perspective of someone who does not like the genre. But crucially, we added new measures asking participants how much they would enjoy watching the rest of the film and other anime films like it. If the vicarious construal effect changes participants' understanding of their true preferences for the stimulus, then we should find that the effects generalize to participants' understanding of their broader preferences. But if adopting another's perspective is understood to artificially change one's own experiences ("I'm not experiencing this for myself, but just for someone else..."), then we should not expect the vicarious construal effect to generalize to these measures.

## Method

**Participants and design.** Nine hundred fifty-six American participants were recruited from MTurk and paid a nominal amount for their participation. The design mimicked that of Study 9a: Participants were randomly assigned into one of four conditions in a 2 (perspective: likes genre or dislikes genre) X 2 (order: self-reported enjoyment first or social estimate first) full-factorial design. Two hundred eighty-seven participants failed an attention check. Thus, our analyses included the remaining 669 participants for analyses.

**Procedure.** The procedure was identical to Study 9a except for two changes. First, participants watched an excerpt from the Japanese anime *Carnival Phantasm*, a fantasy-comedy that lasted three seasons. Second, we asked not only about participants' experience watching the clip ( $\alpha = .99$ ) and their estimate of the yoked participant ( $\alpha = .99$ ), but their beliefs about their own broader interest in the genre. One item stated, "You watched a 2-minute clip of an anime film. How much do you think you would enjoy watching the entire film?" A second item read, "How much do you think you would enjoy watching more anime films in the future?" The two items were correlated,  $r = .88$ ,  $p < .001$ , and were averaged to establish a *preference for anime* composite.

## Results and Discussion

As in Study 9a, considering the perspective of someone who liked anime helped one to enjoy the film more than did considering the perspective of an anime nonfan. That is, we observed a main effect of perspective,  $F(1, 664) = 10.56$ ,  $p = .001$ ,  $\eta_p^2 = .02$ . Participants yoked to another participant who likes anime enjoyed the clip more ( $M = 38.73$ ,  $SD = 25.70$ ) than participants yoked to a participant who dislikes anime ( $M = 32.25$ ,  $SD = 25.76$ ). Addressing the

same artifactual accounts that Study 9a ruled out, we observed no Perspective X Order interaction,  $F < 1$  (see Figure 8B).

But did experiencing the stimulus through another's eyes lead to a more or less enjoyable experience that was attributed to the manipulation, or to one's own true or stable resonance with such stimuli? To answer this additional question, we submitted the preference for anime composite to the same two-way ANCOVA. The same perspective main effect emerged,  $F(1, 664) = 4.30, p = .04, \eta_p^2 = .01$ . That is, participants yoked to the anime fan thought that they themselves would enjoy consuming more Japanese anime in the future ( $M = 3.83, SD = 1.85$ ) than did those yoked to an anime nonfan ( $M = 3.53, SD = 1.86$ ). These findings did not depend on the order manipulation,  $F < 1$ .

We explain this pattern by arguing that the perspective manipulation changed participants' own experience, which they attributed to their own stable preferences, not the enjoyability of the manipulation itself. But by an alternative explanation, the two effects we saw may be unrelated. That is, perhaps participants *did* attribute their enjoyment of the clip (or lack thereof) merely to the manipulation, but those who failed to see what the yoked participant saw were curious to learn more. By this alternative account, perhaps it was those who *disliked* the clip, but who were yoked to an anime lover, who responded by thinking, "This seems terrible, but maybe if I watched the whole thing, I'd see what this whole anime craze is about!" Although we did not think this possibility likely, it was at least made possible by our inclusion of baseline liking for anime as a covariate (given individual differences in preference for anime are partialled out in our main analyses).

To address this alternative, we tested whether participants' own enjoyment of the clip positively statistically mediated the influence of our intervention on participants' preference for

more anime. When we added enjoyment of the clip to the last model, we found that enjoyment was a significant positive predictor of preference for anime,  $F(1, 663) = 1187.47, p < .001, \eta_p^2 = .64$ . The effect of the perspective manipulation was no longer significant,  $F(1, 663) = 1.54, p < .215, \eta_p^2 = .002$ . We tested for the significance of the indirect effect using Hayes' PROCESS macro Model 4 (Hayes, 2013). With the baseline preference for anime and the order factor controlled, we observed a significant indirect effect of preference for anime through enjoyment of the clip, 95% CI = [.1375, .5948].

### Study 10: Other's Same or Different Experience

People show evidence of a vicarious construal effect when their own experience of a stimulus is influenced by the social construal they adopt. In many of our studies, we have shown that participants slow or stop their habituation by being led to consider a novel perspective on the stimulus. But this manipulation can be broken down into two parts, and Study 10 was designed to test whether both do indeed contribute to the observed effects.

Our perspective manipulation no doubt works in part by encouraging people to consider what it is like to construe and respond to a novel stimulus. But the stronger claim is that the manipulation does something more—it encourages people to consider how a *particular* stimulus, that which one is currently experiencing, is construed through fresh eyes. Accompanying a child on her first trip to an amusement park may encourage people to experience the trip through fresh eyes—that is, considering what novelty means to the child may help one to appreciate the whole day with renewed interest. But a stronger claim is that this rejuvenation effect should be particularly strong if one considers one's *current experience* through another's fresh eyes. That is, as one approaches the high point of the Ferris wheel arc, trying to imagine *that* experience in particular through the newcomer's eyes should make it particularly magical.

In Study 10, all participants began by watching two humorous videos. We counterbalanced which of the two videos participants saw two additional times. Just before the third viewing, some participants were told they would have to judge how another participant watching the same video for the first time would respond to it. This *fresh perspective—same stimulus* condition mirrors our manipulation used before. But other participants were told they would have to judge how another participant watching the other video for the first time would respond. This *fresh perspective—different stimulus* condition thus preserved the instruction to consider another's fresh perspective and novel response, but did not explicitly encourage participants to apply the lens to the stimulus to which participants had habituated. *Control* participants did not receive special instructions before their third viewing.

A reduction in habituation for the fresh perspective—different stimulus condition, compared to the control condition, would demonstrate that considering a fresh perspective and the accompanying intensity of the novel experience is at least partially responsible for our effects. But to establish that people's construal of a particular stimulus is altered by considering someone else's construal of that same stimulus, we should find an additional reduction in habituation when participants consider the fresh perspective of someone experiencing the same stimulus, compared to the different stimulus.

## Method

**Participants and design.** One thousand eight hundred fifty-four participants were recruited from MTurk for a nominal payment. Participants were randomly assigned to one of six conditions in a 3(perspective: fresh—same stimulus, fresh—different stimulus, control) X 2(habituation target: Googly Eyes or Driving Lesson) between-subjects design. One hundred

twelve participants failed to answer an attention check correctly, which left a final sample size of 1,742 in all analyses reported below.

**Procedure.** Participants began by viewing two humorous clips: “Googly Eyes” and “Driving Lesson.” “Googly Eyes” is a 1 min 29 s clip from NBC’s *Saturday Night Live*. Christopher Walken plays a gardener who has a phobia of plants. He advises (and demonstrates) placing plastic googly eyes on the plants to address such fears. “Driving Lesson” is a 2 min 23 s clip from *Conan*, a TBS late-night talk show. Conan O’Brien accompanies one of his staff members on a driving lesson around Los Angeles. He offers unconventional instruction, such as teaching how to curse out other drivers in order to effectively establish one’s presence on the road. Notably, the two clips are humorous, but distinctive in content. After watching both clips in a random order, participants were randomly assigned to watch one of the clips two additional times. This habituation target factor was essentially a counterbalancing one. Depending on their perspective condition, some participants received additional instructions before viewing the clip for the third time.

Participants in the *fresh-same stimulus* condition received instructions akin to those used in previous studies. They were told they would have to estimate the experience of someone watching the video they themselves were watching, but for the first time. Participants in the *fresh-different stimulus* condition were told they would have to estimate the first-time experience of someone watching the video they saw but were no longer watching. Those in the control condition received no special instructions. In this way, participants in the two fresh conditions were encouraged to consider someone else’s fresh perspective on a humorous stimulus, but only those in the fresh-same condition were explicitly instructed to construe the video being watched in such terms.

At the conclusion of each of the four showings of the video, participants indicated the extent to which they found the clip to be *amusing*, *entertaining*, and *humorous* on 0 (not at all) to 100 (most I have ever felt) scales. Averaging these responses yielded an *amusement composite*, which had good reliability throughout the three uses of the measures (average  $\alpha = .95$ ). After the third viewing of one of the videos, participants also estimated a future participant's experience on the same measures. Participants in the fresh-same stimulus and control conditions estimated a future participant's responses watching the same clip for the first time. Those in the fresh-different stimulus condition estimated a future participant's responses watching the different clip for the first time. The order of the three humor prompts was randomized for each participant for each trial.

## Results and Discussion

Demonstrating that habituation was at play, participants found whichever clip they watched multiple times to be less humorous when watching it for the second time ( $M = 67.82$ ,  $SD = 27.92$ ) than when watching it for the first time ( $M = 75.34$ ,  $SD = 24.64$ ),  $F(1, 1741) = 498.64$ ,  $p < .001$ ,  $\eta_p^2 = .22$ . But how did our manipulations change how much participants habituated further from the second to the third viewing? We submitted the amusement composite to a 3(perspective: fresh-same, fresh-different, or control)  $\times$  2(time: 2<sup>nd</sup> viewing or 3<sup>rd</sup> viewing)  $\times$  2(habituation target: Googly Eyes vs. Driving Lesson) mixed model. Only the second factor was measured within-subjects.

Showing that our perspective manipulation affected participants' rate of subsequent habituation, the Perspective  $\times$  Time interaction was significant,  $F(2, 1736) = 57.21$ ,  $p < .001$ ,  $\eta_p^2 = .06$ . This crucial effect did not further interact with the habituation target, suggesting that our effects emerged similarly regardless of which video participants watched repeatedly,  $F(2, 1736)$

$= 1.86, p > .15, \eta^2_p < .01$ . But to test our more specific hypotheses, we conducted a series of  $2(\text{time}) \times 2(\text{perspective})$  ANOVAs. This permitted us to understand which between-condition differences were driving the omnibus interaction.

First, we observed a significant  $3(\text{perspective: fresh-same, fresh-different, or control}) \times 2(\text{time: 2}^{\text{nd}} \text{ viewing or 3}^{\text{rd}} \text{ viewing})$ ,  $F(2, 1739) = 57.31, p < .001, \eta^2_p = .06$ . Figure 9 depicts the interaction. Although participants in the control condition continued to show a substantial decline in their assessment of the repeatedly-shown clip as humorous ( $M_{T2-T3} = 11.57, SD = 17.62$ ), those who considered the experience of another participant watching a *different* clip for the first time showed a smaller decline ( $M_{T2-T3} = 4.61, SD = 12.97$ ),  $F(1, 1168) = 59.09, p < .001, \eta^2_p = .05$ . But crucially, those who considered the experience of another participant watching the *same* clip for the first time showed an additional significant decline in habituation ( $M_{T2-T3} = 2.46, SD = 14.55$ ),  $F(1, 1152) = 7.03, p = .008, \eta^2_p = .01$ .

[Figure 9 here]

By unconfounding two components of our perspective manipulation, we find that both contribute to our effect. First, we find that being prompted to consider a novel response to a humorous stimulus was itself sufficient to reduce habituation compared to no other instructions at all. That is, contemplating novelty did make the current experience less stale. But second, and crucial for our account, being pushed to contemplate one's current experience through fresh eyes had an additional habituation-stunting effect. This shows that the vicarious construal effect emerges both because one considers a novel response (the first comparison) and a novel construal of the stimulus in question (the second comparison).

### General Discussion



As people sense and experience the world, they may feel as if they are learning directly about its contents. Some movies are sad; some people are endearing; some shows are funny; some ideas are inspiring. But to offer a twist on a classic philosophical question about trees falling and sound: If an idea were shared but there was no one there to hear it, would it still be inspiring? These descriptors characterize people's interpretation of or construal to stimuli, not invariant readouts of the properties themselves.

Construals vary. Two people see a stimulus differently at a single point in time; a single person will interpret a stimulus differently at two (even relatively close) points in time. But even though people typically underappreciate the power of such construals (a point that various aspects of our results emphasize), eleven studies highlight people's relatively easy ability to try on and experience the consequences of alternative construals—including those they seemingly had but lost (Studies 1-6, 8, 10), as well as those they would not have had spontaneously (Studies 7, 9a-9b). By trying to see a stimulus through another's eyes, people's experiences changed in line with those alternate construals. This vicarious construal effect influenced a wide range of experiences and emotions: happiness (Study 1), disgust (Study 2), sadness (Studies 3 and 8), interest (Study 4), awe (Studies 5-6), humor (Studies 7 and 10), and enjoyment (Studies 9a-9b).

We isolated these effects to consequences of adopting alternative construals. That is, the VCE emerges not merely because of the simultaneity of someone else's experience (Studies 4-6, 8-10) or the emotion they are assumed to be experiencing (Study 10), but because of the different perspective another can be understood to possess. As a result, people were able to slow habituation by considering another's fresh perspective (Studies 1-6, 8, 10) preemptively habituate by considering another's stale perspective (Study 7), and find varying degrees of

enjoyment in a film by considering how those positively or negatively disposed to similar stimuli would react (Studies 9a-9b).

Although people are typically blind to the power of construal in shaping their experience, it might be natural to think that our heavy-handed interventions are putting the importance of construal in sharper focus. To the contrary, even when people are actively and intentionally considering the perspective of someone in a different situation, they fail to realize that it is this intervention—not merely the objective reality of the stimulus or their own preferences—that is driving their experience. This explains why those whose rate of habituation to a sad stimulus had been stalled by the VCE thought that untreated others would find the stimulus to be sadder (Study 8). It also explains why those whose enjoyment of an anime film had been altered by the VCE had different interest in watching more anime in the future (Study 9b). In other words, even when people are not blind to construal, they are at least partially blind to its ability to shape experience.

### **Considering Threats to the Validity of Self-Report Measures**

To study people's subjective characterization of their own experience, we asked people to report on such subjective characterizations. But in relying on such self-report measures, we have a special responsibility to consider threats to measurement validity. We address such threats in four ways:

First, we showed that the VCE is not merely a measurement artifact of anchoring and adjustment. That is, even when control participants were also anchored on someone else's unhabituated experience—after their own experience but before reporting on it—they did not show the same vicarious construal effect (Study 6). Second, we worried that those asked to consider an alternative construal may have misinterpreted our key dependent measure. That is,

perhaps they knew that considering someone else's experience did not change their own, but they thought the question was a manipulation check of sorts, making sure that they followed the intervention's instructions. But this understanding would have trouble accounting for the effects—reviewed above—that our interventions changed people's beliefs about how untreated others would respond (Study 8) or how they themselves would enjoy subsequent similar experiences (Study 9b). Third, we addressed a concern that those in our intervention conditions—those who had been warned that they would have to provide an estimate of someone else's experience—may not have realized that we first asked about their own experience, not their estimate of someone else's. But this alternative would have predicted that the VCE would be limited to (or at least stronger when) participants were asked to report their own experience before providing an estimate of someone else's. But a lack of an order effect on these final items minimized this measurement concern (Studies 9a-9b).

Although we consider the just-reviewed evidence to be relatively strong, we also conducted an additional study in which we probed the plausibility of a demand effect. That is, perhaps participants were merely “playing along” and reported an experience that the experimenter expected of them, not one they actually had. But if people are stating what they believe the experimenter wants to hear, it implies that people intuit our hypotheses. To be clear, accurately guessing our hypotheses does not necessarily show the VCE is a product of demand, but failing to anticipate our effects makes demand an extremely unlikely account.

To probe the plausibility of the demand alternative, we conducted a study in which we asked people to guess the experimenter's hypothesized results (instead of reporting on their own experience). Participants ( $N = 1,636$ ) watched “Googly Eyes”; some also watched “Driving Lesson” (both from Study 10). Everyone learned that in a different study, people saw “Googly

Eyes” three times. They all first guessed, “how the researcher conducting that study expects those participants to find the video clip to be while watching it for the second time on the following items—i.e., what is the researcher hypothesizing?” Participants indicated the extent to which the researchers would expect others to find the clip to be *amusing*, *entertaining*, and *humorous* on a 0 (not at all) to 100 (most I have ever felt). As in Study 10, the measure had good reliability (average  $\alpha = .96$ ).

But at that point, participants considered one of four distinct experimental manipulations that mapped onto ones used in our actual studies: concurrent fresh perspective (Studies 1-3), concurrent stale perspective (Studies 3-5, 7), future fresh perspective (Studies 4-6, 8-10), or fresh-perspective-different stimulus (Study 10). Participants read verbatim instructions that those in the respective condition would have seen before the third viewing of the stimulus. Participants then indicated how they thought the researcher expected participants to characterize their experience. After this, only 949 participants could indicate which instructions they had been exposed to earlier. Although we report the (largely similar) results from our full sample in the Supplemental Materials, we restrict our analyses here to those who could accurately recognize the manipulation to which they had been exposed.

If the VCE is merely a product of demand, then participants’ guesses about the results should roughly match the results actually observed in our main studies. One hypothesized effect that participants easily anticipated was that of habituation. They understood that participants would be expected to respond less intensely at time 3 ( $M = 51.20$ ,  $SD = 28.63$ ) than at time 2 ( $M = 62.73$ ,  $SD = 24.64$ ),  $F(1, 945) = 361.88$ ,  $p < .001$   $\eta_p^2 = .28$ . But beyond this basic understanding that habituation would emerge ( $M_{T2-T3} = 11.53$ ,  $SD = 18.43$ ), participants’ intuitions were more muddled.

We proceeded to test participants' intuitions about how the conditions would change the rate of habituation. First, participants were directionally accurate in appreciating that those in the fresh perspective condition would experience slowed habituation ( $M_{\text{dif}} = 11.27$ ,  $SD = 18.28$ ) compared to those in the stale perspective condition ( $M_{\text{dif}} = 13.91$ ,  $SD = 15.37$ ), but this expectation was only marginally significant,  $t(529) = 1.80$ ,  $p = .073$ ,  $d = .16$ . For context, the fresh perspective condition reduced the rate of habituation by  $d = .68$  in Study 10. Those charged with guessing what the experimenters wanted to hear anticipated a much smaller (and not reliable) effect<sup>1</sup>.

Second, did participants anticipate a more nuanced feature of the VCE—that it should be stronger when considering someone approaching the same stimulus than a different one? In short, no. Participants thought taking a fresh perspective on the same stimulus ( $M_{\text{T2-T3}} = 11.27$ ,  $SD = 18.28$ ) would be equivalent to taking a fresh perspective on a different one ( $M_{\text{T2-T3}} = 11.84$ ,  $SD = 18.48$ ),  $t < 1$ ,  $d = .03$ . In Study 10, this difference was clearly reliable,  $t(561) = 3.33$ ,  $p = .001$ ,  $d = .28$ . Once again, this mismatch is hard to square with a concern that participants are merely displaying a demand effect—responding how they thought the experimenters wanted them to.

Third, although Study 10 found that the rate of habituation was slowed in the fresh-perspective-different-stimulus condition compared to the stale perspective one,  $d = .45$ , participants did not intuit this gap ( $M_{\text{T2-T3}} = 8.95$ ,  $SD = 21.19$  vs.  $M_{\text{T2-T3}} = 11.27$ ,  $SD = 18.28$ ;  $t(505) = 1.33$ ,  $p = .19$ ,  $d = .12$ ). Although this gap was less central to our theorizing, the mismatch between expectations and actual reported experience helps to speak against the influence of demand. Combined with the various features of our studies designed to rule out other threats to measurement validity, these results provide additional assurance that our effects

did not reflect participants reporting what they thought experimenters wanted to hear, but instead what they experienced.

[Table 1 here]

### **Remaining Questions Concerning Boundaries of the Vicarious Construal Effect**

We argued and repeatedly demonstrated that by trying to understand an alternative construal, people's own experience shifts as a result. Although construals often are crucial moderators that influence how what we sense is interpreted and experienced, this may not always be the case. That is, some experiences may be primarily defined by low-level sensory or physiological feedback cues (Mook, 1996). And in fact, we conducted one study with stimuli of this variety: potato chips. We found that although we could induce participants to habituate to an unusual flavor of potato chips (cheesy garlic bread, bacon mac and cheese), asking people to consider someone eating the chips for the first time did not slow their rate of habituation,  $F(1, 191) = 1.33, p = .25, \eta_p^2 = .007$ . Although it is necessarily difficult to extrapolate from null effects, this offers a hint that not all experience can be reintensified by considering another's perspective.

In other cases, people may not have the proper level of expertise to fully appreciate an alternative construal. Although we have focused on stimuli to which one habituates, other stimuli are acquired tastes; they improve with experience. For many Americans, British humor is an acquired taste. It is only with some experience that its subtlety is understood. Whether Americans could adopt a Brit's perspective and find *Mr. Bean* hilarious is an empirical question. More generally, although none of the psychology believed to underlie the VCE itself should be culturally bound, people may not be able to adopt other construals that lean on culturally specific knowledge of which they are not aware. That said, Studies 9a-9b, which showed that people

could find Japanese anime to be more or less enjoyable depending on whose perspective they were considering, may suggest that preexisting expertise or cultural boundaries are not particularly limiting factors. That is, the VCE may stem from being attentive to and open to what is good or bad about a stimulus, even when one does not have the *a priori* expertise to be able to identify exactly what those good or bad features are.

People's difficulty of adopting an alternative construal may not be limited to people's ability to do so. It may also be restricted by their *motivation* to comply with the instructions. For example, an environmental activist may not be willing to fully adopt a climate skeptic's construal while watching *An Inconvenient Truth*. Entertaining such counterfactual perspectives may itself feel heretical (Tetlock et al., 2000).

Finally, it is unclear to what extent people would experience the VCE if they strategically or repeatedly attempted considering a stimulus through another's eyes. In our studies, participants were blind to the power of the intervention in shaping their own experience. Once people are aware of (and even intentionally attempt to exploit) its effects, will their experience be similarly shaped? On the one hand, it would seem that such a strategic orientation might undermine its ability to produce seemingly veridical, undistorted experiences. On the other hand, despite such intent, the intervention may still encourage a confirmatory search in making sense of the stimulus, one that may push people to attend to different components of it than they would have spontaneously. Answering questions of this sort will help not merely to expand on the theoretical contributions begun here, but to offer insights into how the vicarious construal effect can help people see the sheen that still resides under the dust.

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## FOOTNOTE

1. This is not a perfectly parallel comparison because the control condition in Study 10 was no perspective taking instead of stale perspective taking. That said, Study 3 found that taking a stale perspective was statistically indistinguishable from taking no social perspective,  $F < 1$ , so we see this comparison as informative.

Table 1

*Average Estimated Rate of Habituation by Condition (General Discussion Study)*

	Concurrent Fresh Perspective	Concurrent Stale Perspective	Future Fresh Perspective	Fresh Perspective- Different Stimulus
T2 and T3	11.27 <sup>a,b</sup>	13.91 <sup>a</sup>	8.95 <sup>b</sup>	11.84 <sup>a,b</sup>
Difference in Mean Scores	(18.28)	(15.37)	(21.19)	(18.48)

*Note.* Each average reflects the estimated amusement at Time 2 minus the estimated amusement at Time 3. Standard deviations are in parentheses.



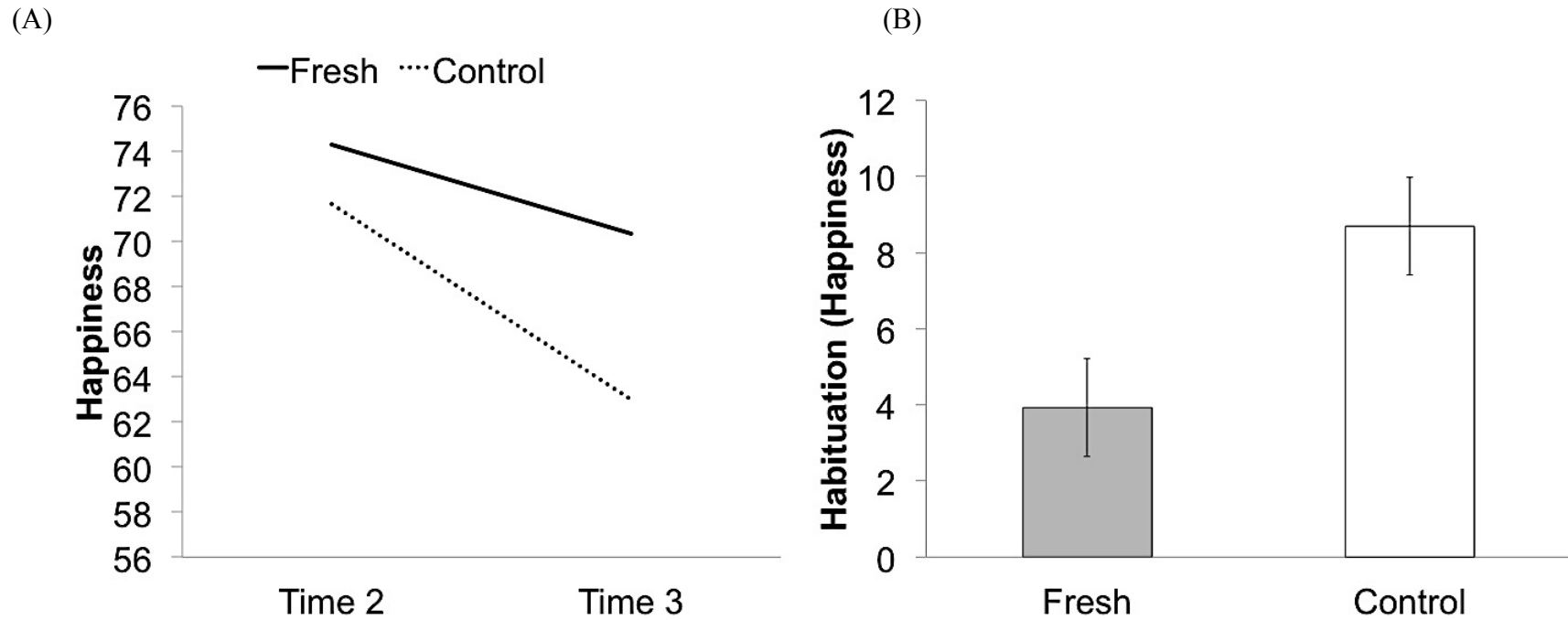


Figure 1. Study 1—(A) Self-reported happiness in the fresh perspective (Fresh) and control conditions on the second and third viewings. (B) Mean feeling of happiness at time 2 minus the mean feeling of happiness at time 3 in the fresh perspective and control conditions. Error bars reflect  $\pm 1$  standard error from the mean.

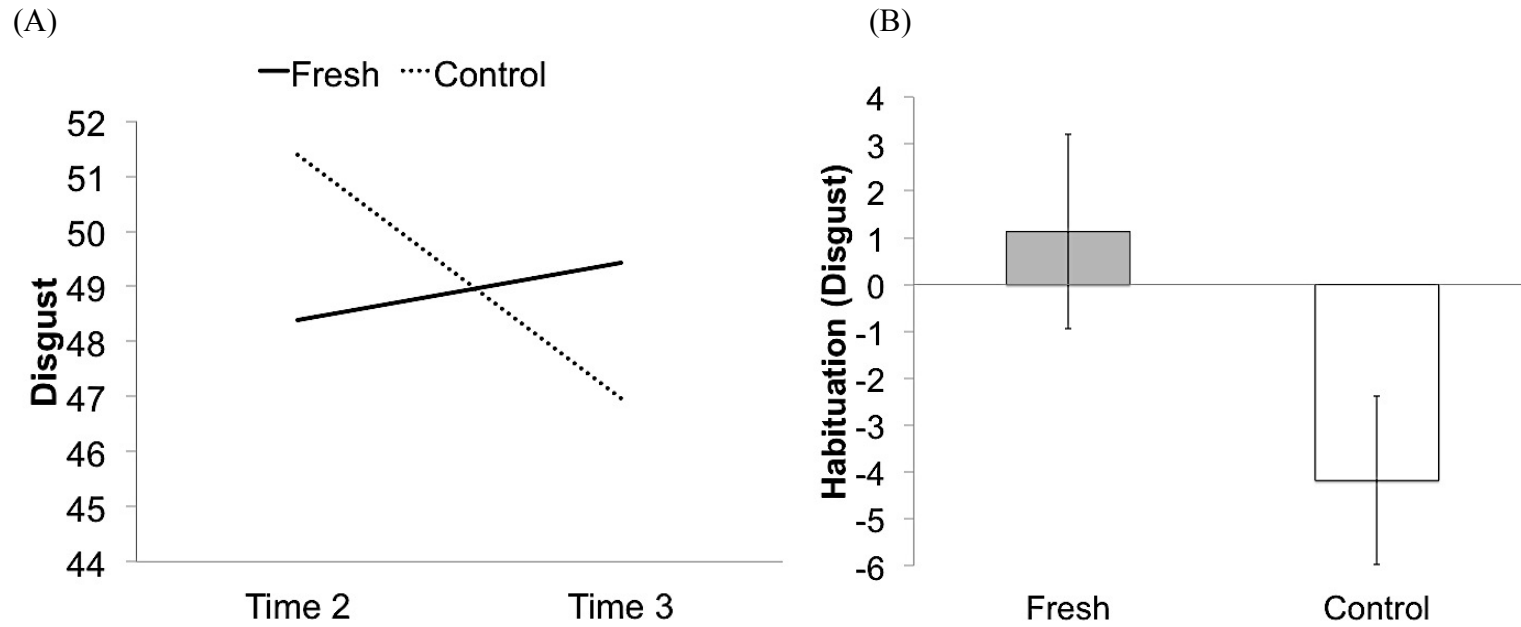


Figure 2. Study 2—(A) Self-reported disgust in the fresh perspective (Fresh) and control conditions on the second and third viewings. (B) Mean feeling of disgust at time 2 minus the mean feeling of disgust at time 3 in the fresh perspective and control conditions. Error bars reflect  $\pm 1$  standard error from the mean.

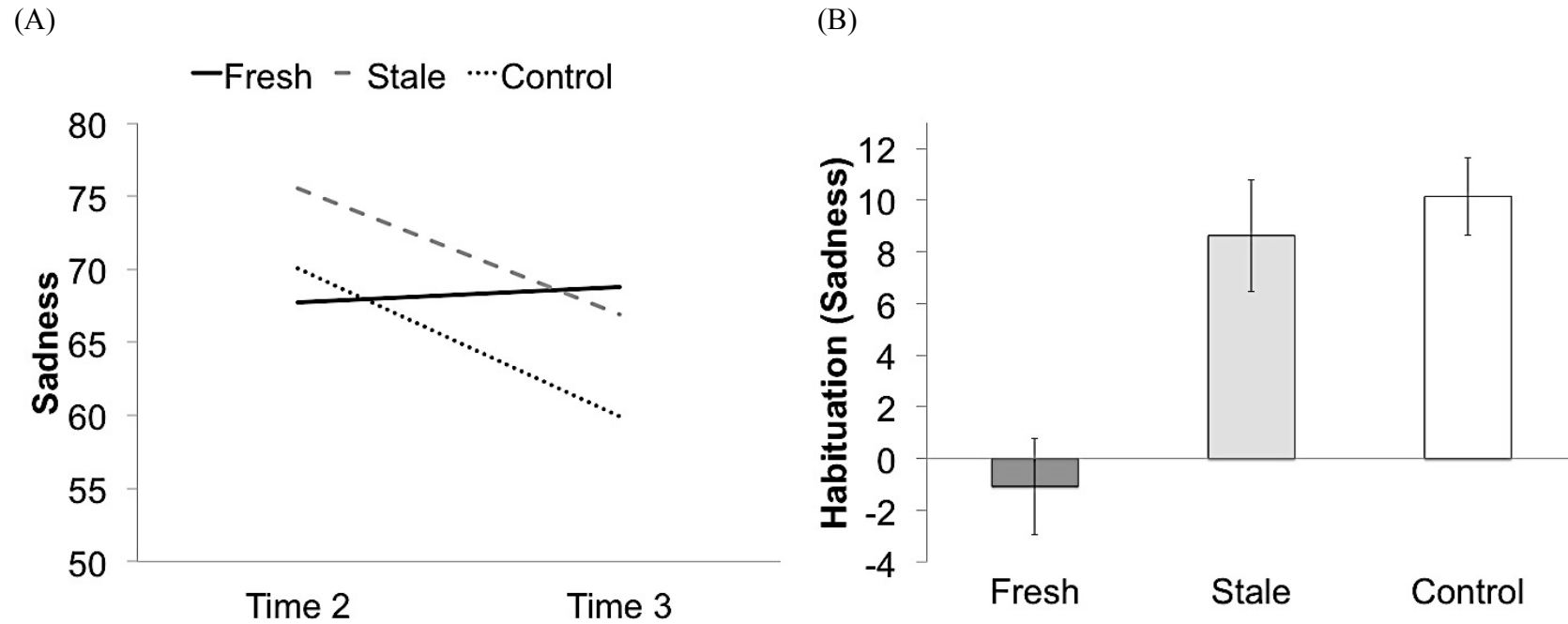


Figure 3. Study 3—(A) Self-reported sadness in the fresh perspective (Fresh), stale perspective (Stale), and control conditions on the second and third viewings. (B) Mean feeling of sadness at time 2 minus the mean feeling of sadness at time 3 in the fresh perspective, stale perspective, and control conditions. Error bars reflect  $\pm 1$  standard error from the mean.

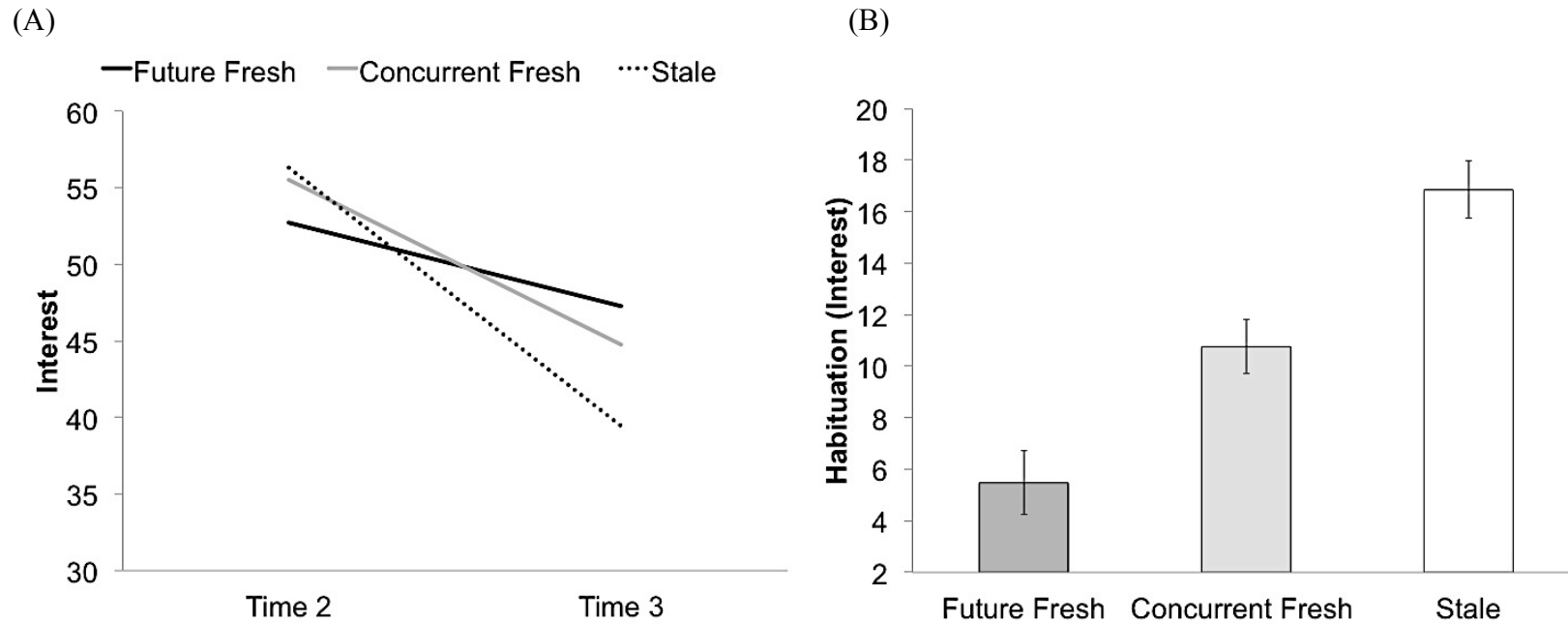


Figure 4. Study 4—(A) Self-reported interest in the video in the future fresh perspective (Future Fresh), concurrent fresh perspective (Concurrent Fresh), and stale perspective (Stale) conditions on the second and third viewings. (B) Mean indication of interest at time 2 minus the mean indication of interest at time 3 in the future fresh perspective, concurrent fresh perspective, and stale perspective conditions. Error bars reflect  $\pm 1$  standard error from the mean.

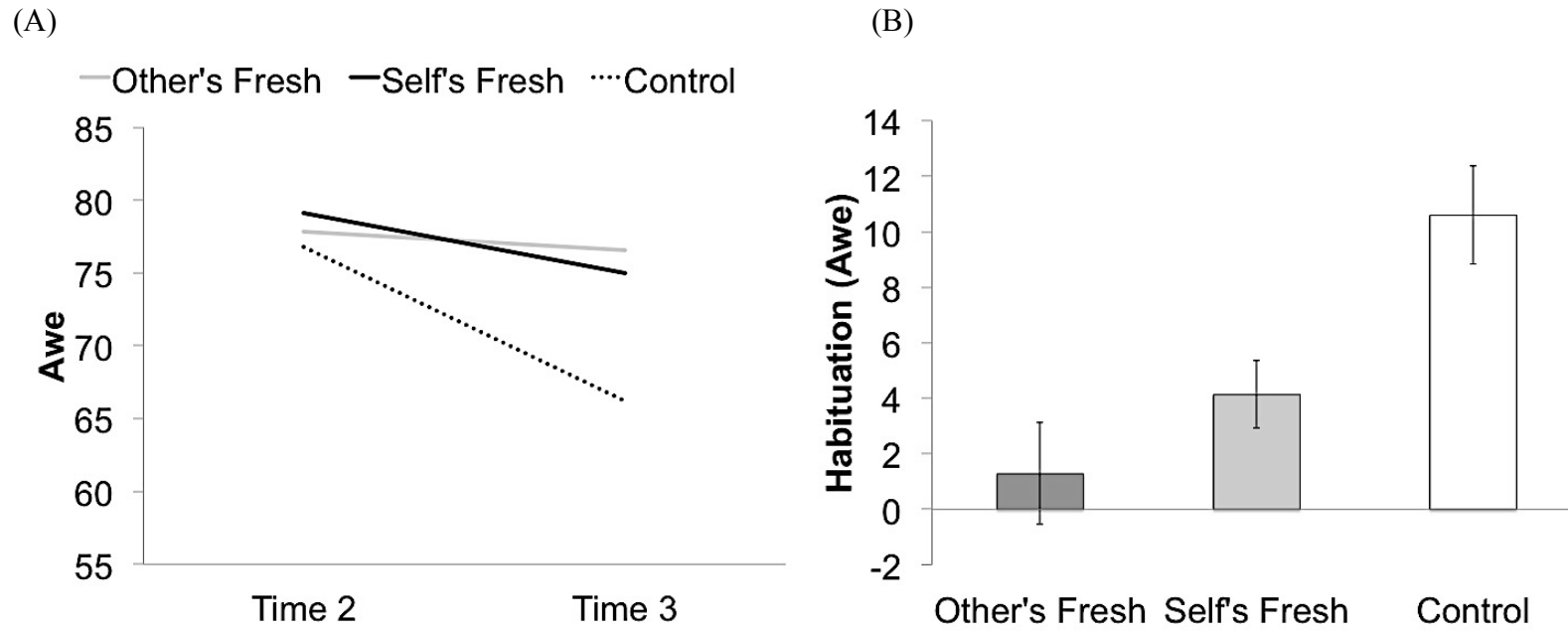


Figure 5. Study 5—(A) Self-reported awe in the other's fresh perspective (Other's Fresh), self's fresh perspective (Self's Fresh), and control conditions on the second and third viewings. (B) Mean feeling of awe at time 2 minus the mean feeling of awe at time 3 in the other's fresh perspective, self's fresh perspective, and control conditions. Error bars reflect  $\pm 1$  standard error from the mean.

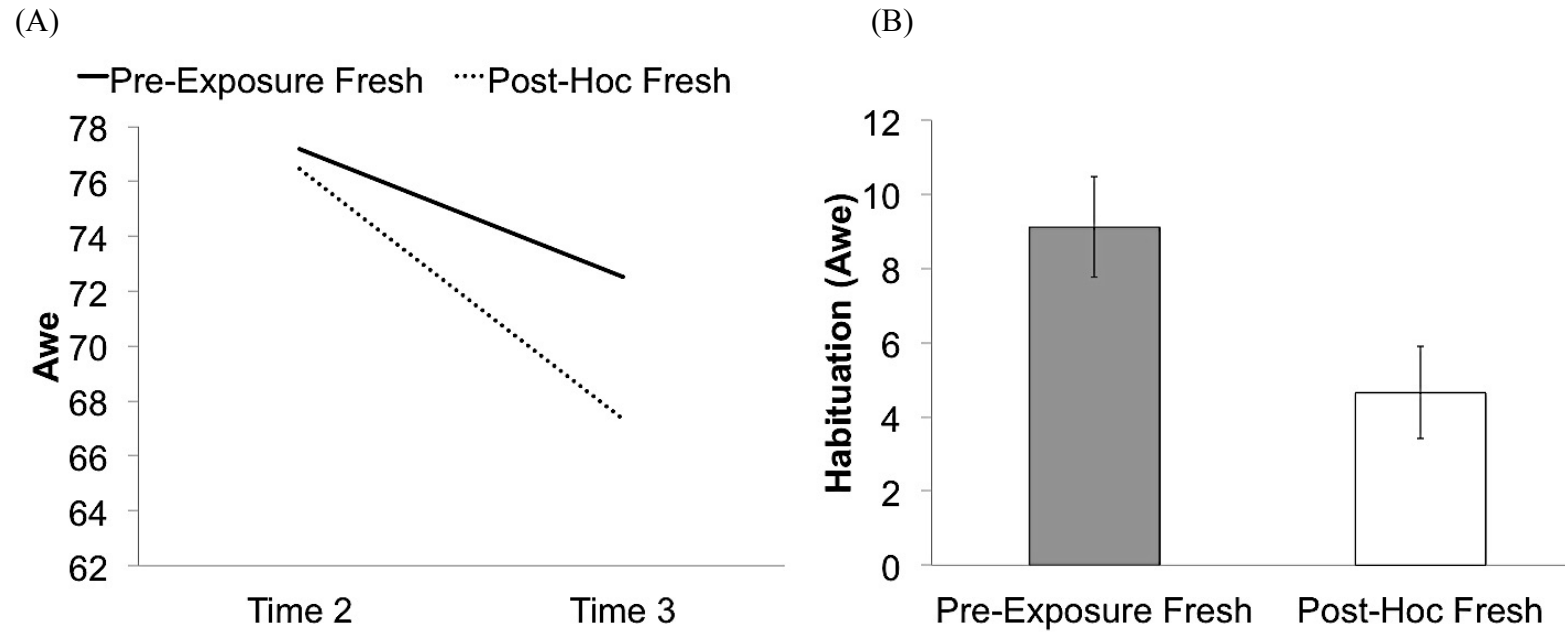
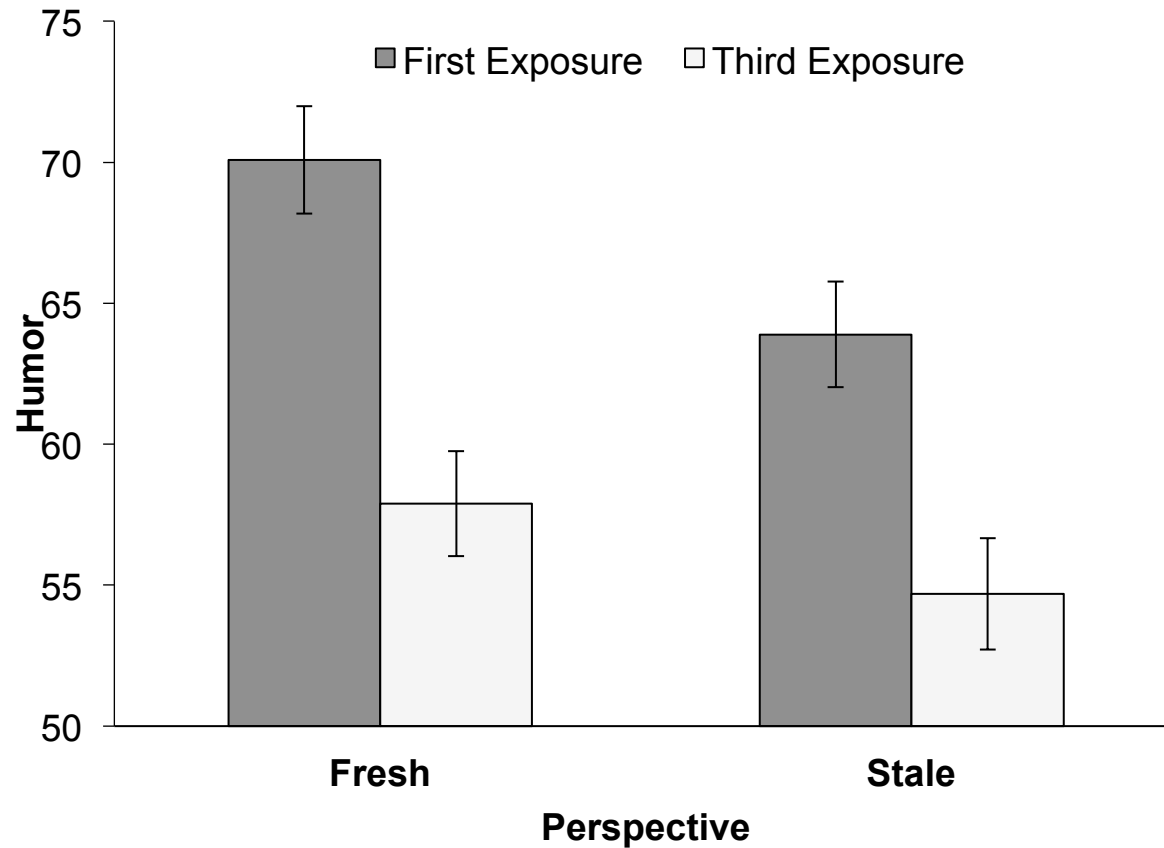


Figure 6. Study 6—(A) Self-reported awe in the pre-exposure fresh perspective (Pre-Exposure Fresh) and post-hoc fresh perspective (Post-Hoc Fresh) conditions on the second and third viewings. (B) Mean feeling of awe at time 2 minus the mean feeling of awe at time 3 in the pre-exposure fresh perspective and post-hoc fresh perspective conditions. Error bars reflect  $\pm 1$  standard error from the mean.



*Figure 7.* Study 7—Mean humor composite by fresh perspective and stale perspective conditions for participants who received this intervention on their first or third exposure to the stimulus. Participants in the fresh perspective condition were told to consider the experience of a first-time experiencer, whereas those in the stale perspective condition were told to consider the experience of someone who had already seen the video twice before. Error bars reflect  $\pm 1$  standard error from the mean.

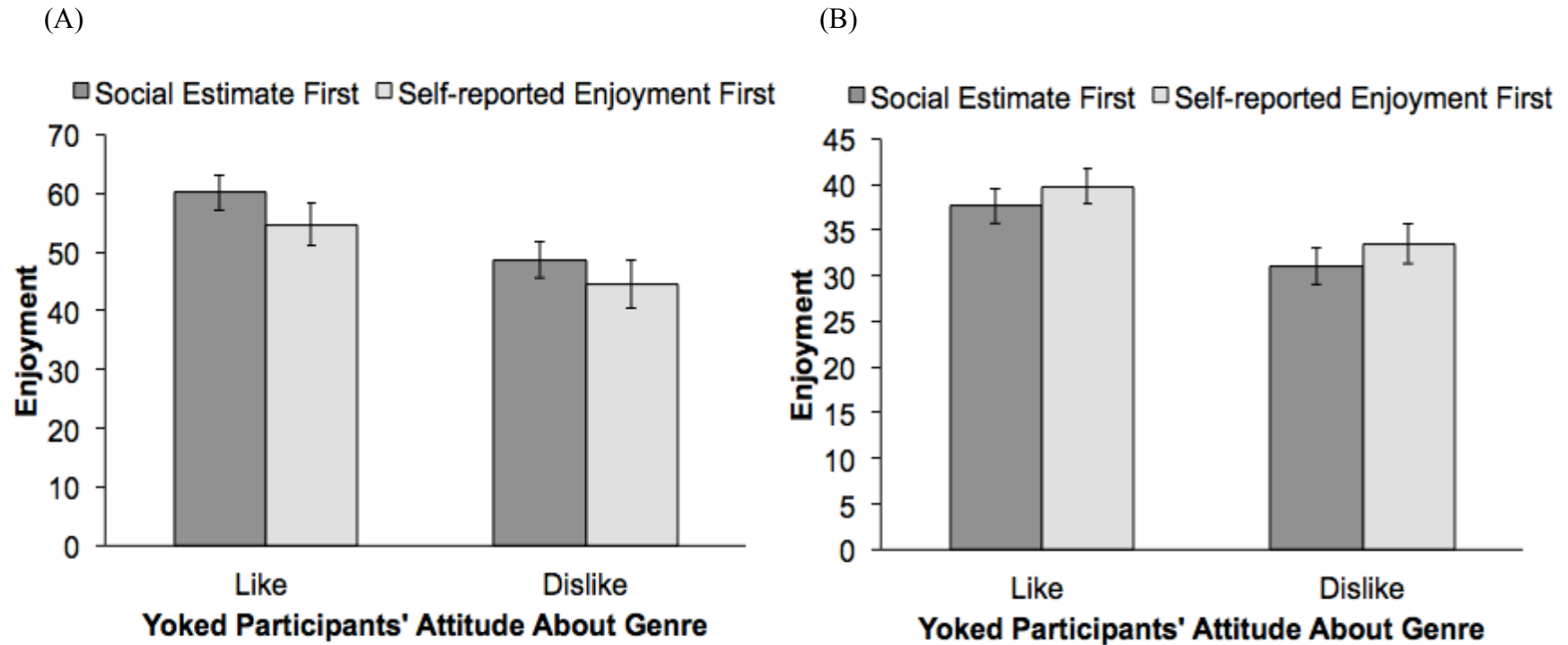
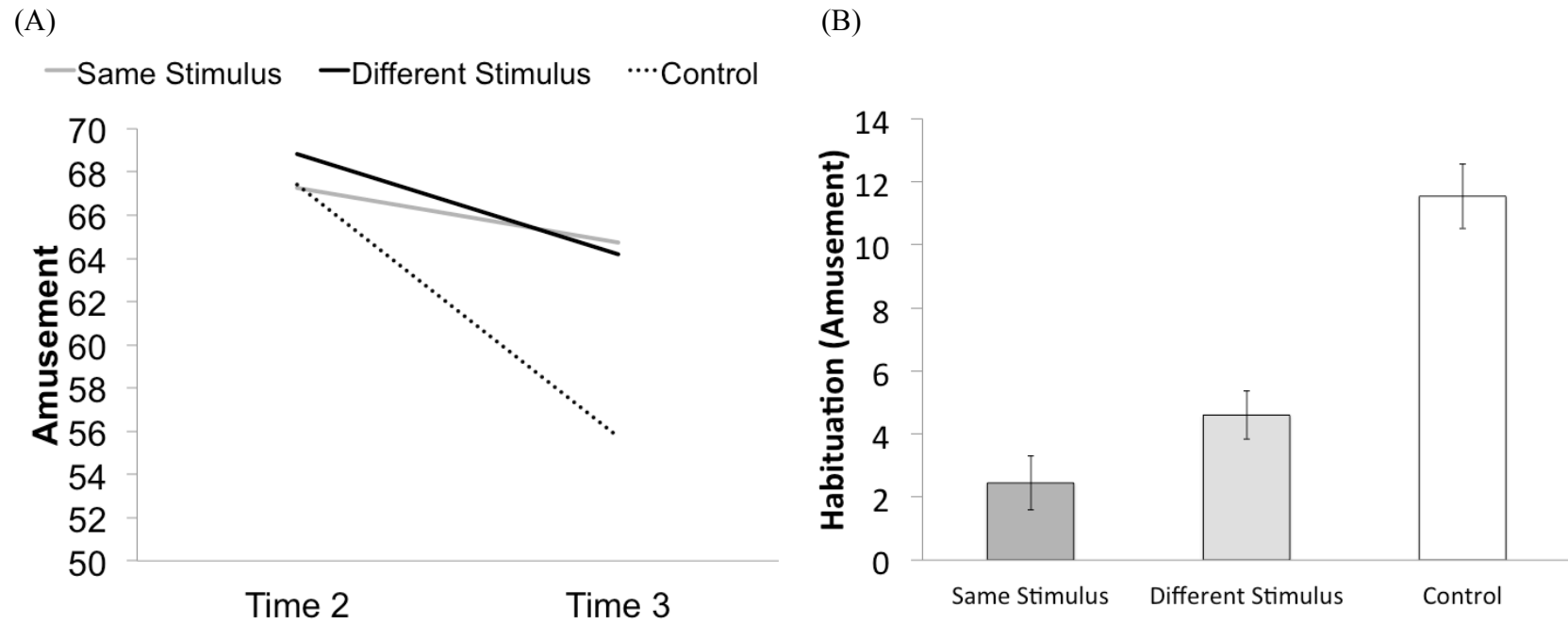


Figure 8. Self-reported enjoyment of the Japanese Anime clip in Studies 9a and 9b (A: Study 9a: Terror in Resonance B: Study 9b: Carnival Phantasm). Participants in the “Social Estimate First” condition estimated the other before reporting their own enjoyment and those in the “Self-reported Enjoyment First” condition reported their own enjoyment before estimating the other’s enjoyment. Error bars reflect  $\pm 1$  standard error from the mean.





*Figure 9.* Study 10—(A) Self-reported amusement in the fresh—same stimulus (Same Stimulus), fresh—different stimulus (Different Stimulus), and control conditions on the second and third viewings of the habituation target. (B) Mean feeling of amusement at time 2 minus the mean feeling of amusement at time 3 for other's watching the same stimulus, different stimulus, and the control condition. All error bars reflect  $\pm 1$  standard error from the mean

## Supplemental Materials

### Study 1. Happiness

Table S1

*Self's and Predicted Other's Responses (Study 1)*

	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Control Condition						
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	179	75.34 (24.124)	74.872 (22.13)	.70**	.349	.728
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	178	62.98 (32.53)	74.76 (22.14)	.60**	-5.98	<.001
Fresh Perspective Condition						
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	188	78.73 (21.22)	76.00 (21.61)	.60**	1.95	.053
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	188	70.35 (27.11)	76.00 (21.61)	.60**	-5.65	<.001
Overall						
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	367	77.08 (22.71)	75.45 (21.84)	.65**	1.671	.096
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	366	65.76 (30.05)	75.40 (21.85)	.59**	-6.73	<.001

*Note.* \*\* $p < .01$ . Comparisons are for a participant's own experience at time points 1 (Self 1<sup>st</sup>) and 3 (Self 3<sup>rd</sup>) versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first time (Other 1<sup>st</sup>), broken down by condition.

*Attention check question:*

What task were you asked to perform in this study?

- Indicating how you felt after watching video clips.
- Evaluating the visual and audio qualities of video clips.
- Watching a video clip and describe its content.
- Describing your opinion about saving polar bears.
- Learning information about when an urban petting zoo will be opening.

*Analysis including the attention failure:*

Participants reported greater happiness at time 1 ( $M = 77.56$ ,  $SD = 22.45$ ) than time 2 ( $M = 73.50$ ,  $SD = 25.92$ ), demonstrating that participants habituated to the clip with repeated exposure,  $\text{paired } t(410) = 5.19$ ,  $p < .001$ ,  $d = .17$ . Did the new perspective manipulation slow the rate of habituation? We conducted a repeated-measures ANOVA to test whether the additional decline in happiness from time 2 time 3 was stunted by the fresh perspective manipulation. The predicted Perspective X Time interaction emerged,  $F(1, 400) = 4.56$ ,  $p = .03$ ,  $\eta_p^2 = .01$ . Although participants in the control condition showed a decline in happiness ( $M = 7.85$ ;  $\text{paired } t(198) = 6.60$ ,  $p < .001$ ,  $d = .27$ ), those in the new perspective condition showed an attenuated decline ( $M = 4.20$ ;  $\text{paired } t(202) = 3.43$ ,  $p = .001$ ,  $d = .16$ ). Stated differently, the new perspective intervention slowed the rate of habituation by 46%.

## Study 2. Disgust

Table S2

*Self's and Predicted Other's Responses (Study 2)*

	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	157	72.50 (30.90)	77.43 (27.72)	.72**	2.77	.006
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	156	48.94 (36.06)	77.29 (27.75)	.53**	-11.17	<.001

*Note.* \*\* $p < .01$ . Comparisons are for a participant's own experience at time points 1 (Self 1<sup>st</sup>) and 3 (Self 3<sup>rd</sup>) versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first time (Other 1<sup>st</sup>). Others' responses are only those in the other condition who filled out the others' responses.

*Attention check question:*

Please watch and listen to the following clip.

Participants watched a 31s clip in which a man taming an owl while they listened to the audio of news reports about Obama's outreach to religious groups.

What did you hear when you listened to the audio of this video?

- A discussion of Obama's outreach to religious groups.
- An interview about a novelty restaurant.
- A consideration of how best to tame wild owls.
- An examination of cultural differences in how best to operate a business.
- Information about when an urban petting zoo will be opening.

*Analysis including the attention failure:*

Reflecting habituation, participants felt less disgusted when watching the clip for the second time ( $M = 51.11$ ,  $SD = 35.99$ ) compared to the first time ( $M = 72.14$ ,  $SD = 29.73$ ),  $F(1, 387) = 220.22$ ,  $p < .001$ ,  $\eta_p^2 = .36$ . But also, a significant interaction with the reappraisal manipulation confirmed that the reappraisal manipulation was successful: Participants who distanced themselves from the clip through reappraisal experienced a larger drop in experienced disgust than those who did not receive the reappraisal instructions,  $F(1, 387) = 80.06$ ,  $p < .001$ ,  $\eta_p^2 = .17$ .

Did adopting a fresh perspective on the stimulus slow further habituation to the disgusting clip, and did these results emerge even for those who had already habituated? Or instead, and potentially speaking to the relative weakness of the perspective intervention, might the manipulation work differently for those who had already reappraised versus not? We submitted participant disgust scores to a 2(time: time 2 or time 3) X 2(reappraisal: reappraisal or control) X 2(perspective: fresh or control) mixed-model ANOVA, with only the first factor manipulated within-subjects. We observed a significant Time X Reappraisal interaction,  $F(1, 380) = 7.70$ ,  $p = .006$ ,  $\eta_p^2 = .02$ , as well as a significant Time X Perspective interaction,  $F(1, 380) = 3.96$ ,  $p = .047$ ,  $\eta_p^2 = .01$ . But the three-way interaction did not approach significance,  $F < 1$ .

This reflects that the perspective manipulation operated similarly for those participants who had already distanced themselves from the negative stimulus as well as those who had not, thereby speaking to the robustness of the effect.

But how did the perspective manipulation color participants' reported experience?

Consistent with the vicarious construal account, adopting a fresh perspective completely curbed further habituation to the stimulus. Although participants in the control perspective condition experienced a marginal continued decline from time 2 to time 3 in their reported disgust ( $M = 2.93$ ; paired  $t(189) = 1.86, p = .065, d = .08$ ), participants in the fresh perspective condition actually showed a non-significant uptick in disgust ( $M = -1.61$ ; paired  $t < 1, d = .04$ ).

### Study 3. Sadness

Table S3

*Self's and Predicted Other's Responses (Study 3)*

	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Control Condition						
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	61	74.87 (29.57)	81.21 (20.04)	.56**	-2.00	.050
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	76	72.57 (28.12)	63.20 (30.69)	.51**	2.81	.006
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	53	59.55 (33.79)	80.68 (20.58)	.63**	5.89	<.001
Self 3 <sup>rd</sup> vs. Other 3 <sup>rd</sup>	68	60.22 (32.92)	65.09 (30.58)	.65**	1.50	.139
Other 1 <sup>st</sup> Condition						
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	119	75.52 (32.06)	80.88 (22.92)	.59**	2.08	.040
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	119	68.41 (36.79)	80.88 (22.92)	.55**	-4.40	<.001
Other 3 <sup>rd</sup> Condition						
Self 1 <sup>st</sup> vs. Other 3 <sup>rd</sup>	128	77.58 (26.55)	69.40 (27.61)	.61**	3.86	<.001
Self 3 <sup>rd</sup> vs. Other 3 <sup>rd</sup>	128	68.27 (30.43)	69.40 (27.61)	.88**	-.87	.388

*Note.* \*\* $p < .01$ , standard deviations are in parentheses. Comparisons are for a participant's own

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experience at time points 1 (Self 1<sup>st</sup>) and 3 (Self 3<sup>rd</sup>) versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first (Other 1<sup>st</sup>) and third time (Other 3<sup>rd</sup>), broken down by condition.

*Attention check question:*

Which statement is true?

- The participants who was paired with me were watching the video clip for the first time when watching it at the same as I was.
- The participants who was paired with me were watching the video clip for the second time when watching it at the same time as I was.
- The participant who was paired with me were watching the video clip for the third time when watching it at the same time as I was.
- The participant who was paired with me did not watch the video clip.

*Analysis including the attention failure:*

Showing that participants became habituated to the sad clip, participants reported feeling less sadness after watching *Marley & Me* for the second time ( $M = 71.04$ ,  $SD = 29.41$ ) compared to the first time ( $M = 76.03$ ,  $SD = 27.68$ ), paired  $t(393) = 4.97$ ,  $p < .001$ . To test whether the perspective manipulations changed how much additional habituation participants experienced, we submitted participants' reported sadness to a 2(time: time 2 or time 3) X 3(perspective: fresh, stale, or control) mixed-model ANOVA, with only the first factor measured within-subjects. As expected, the Time X Perspective interaction was significant,  $F(2, 391) = 8.35$ ,  $p < .001$ ,  $\eta_p^2 = .04$ . To understand the nature of the interaction, we proceeded to test a series of 2(time) X 2(perspective) interactions.

Conceptually replicating the findings from Studies 1 and 2, participants showed stunted habituation in the fresh perspective compared to the control condition,  $F(1, 264) = 16.36$ ,  $p <$

.001,  $\eta_p^2 = .06$ . Whereas participants in the control condition showed a decline in sadness from time 2 to time 3 ( $M = 9.31$ ,  $SD = 17.88$ ; paired  $t(136) = 6.09$ ,  $p < .001$ ,  $d = .30$ ), those in the fresh perspective condition showed no change in sadness ( $M = 0.00$ ,  $SD = 19.64$ ; paired  $t < 1$ ,  $d = .00$ ). To distinguish between our competing hypotheses, we next tested the influence of the stale perspective manipulation. Suggesting that considering another's construal was not sufficient to slow habituation, participants in the stale perspective condition showed a similarly sized decline from time 2 to time 3 in sadness ( $M = 5.77$ ,  $SD = 18.57$ ; paired  $t(127) = 3.52$ ,  $p < .001$ ,  $d = .20$ ) as those in the control condition,  $F < 1$ . Establishing most directly the importance of whose perspective was being considered, habituation occurred more quickly in the stale than in the fresh perspective condition,  $F(1, 255) = 5.86$ ,  $p = .016$ ,  $\eta_p^2 = .02$ .

#### Study 4. TedTalk

Table S4

##### *Self's and Predicted Other's Responses (Study 4)*

	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Today 1 Condition						
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	314	44.86 (30.46)	69.94 (21.71)	.43**	-15.44	<.001
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	312	70.14 (22.91)	69.81 (21.73)	.70**	.333	.74
Today 3 Condition						
Self 3 <sup>rd</sup> vs. Other 3 <sup>rd</sup>	219	39.77 (29.98)	36.58 (28.51)	.92**	3.97	<.001
Self 1 <sup>st</sup> vs. Other 3 <sup>rd</sup>	220	73.01 (19.61)	36.45 (28.51)	.38**	19.57	<.001
Tomorrow 1 Condition						
Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	280	47.59 (30.87)	68.88 (23.57)	.60**	14.18	<.001
Self 1 <sup>st</sup> vs. Other 3 <sup>rd</sup>	282	67.66 (25.38)	68.80 (23.51)	.82**	-1.29	.20

Note. \*\* $p < .01$ , standard deviation in parentheses. Comparisons are for a participant's own experience at time points 1 and 3 versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first time, broken down by condition.

*Attention check question:*

In this task you watched a video three times. What did we tell you about the third time you watched the video?

- That you would be predicting the responses of someone who would be watching the video at the same time as you, except this other participant would be watching the video for the first time.
- That you would be predicting the responses of someone who would be watching the video at the same time as you, and that they too would be watching the video for the third time
- That you would be predicting the response of a future participant except this other participant would be watching the video for the first time
- That you would be predicting the responses of a future participant, that they too would be watching the video for the third time.

*Analysis including the attention failure:*

Showing that repeated exposure produces not only emotional habituation but also a decline in engagement, participants' interest dropped from time 1 ( $M = 69.95$ ,  $SD = 23.11$ ) to time 2 ( $M = 56.47$ ,  $SD = 28.48$ ),  $t(1072) = 23.41$ ,  $p < .001$ ,  $d = .52$ . To determine whether our perspective manipulation had an effect on whether participants sustained interest in a fascinating stimulus, we submitted the interest composite to a 2(time: 2 or 3) X 3(perspective: fresh, stale, future fresh) mixed-model ANOVA, with only the first factor measured within-subjects. Suggesting the manipulation did affect how much participants' interest continued to diminish, the Time X Perspective interaction was significant,  $F(2, 1070) = 18.16$ ,  $p < .001$ . To understand the nature of this interaction, we conducted a series of 2(time) X 2(perspective) ANOVAs.

Mirroring a pattern we have observed before, participants who watched Cuddy's video



for the third time knowing their paired concurrent participant was watching it for the first time showed a smaller additional decline in interest ( $M = 10.03$ ,  $SD = 18.14$ ; paired  $t(368) = 10.63$ ,  $p < .001$ ,  $d = .35$ ) than those told their paired concurrent participant was watching it for the third time ( $M = 13.77$ ,  $SD = 17.36$ ; paired  $t(352) = 14.91$ ,  $p < .001$ ,  $d = .59$ ),  $F(1, 720) = 8.01$ ,  $p = .005$ ,  $\eta_p^2 = .01$ . Although this difference shows that the influence of the vicarious fresh perspective is not merely attributable to considering the construal of another, it remains unclear whether participants are responding to the (imagined) concurrent experience of another. To determine whether the simultaneity of experience contributes to our effects, we examined whether participants showed sustained interest in the clip even when considering the first viewing of a future participant. Showing participants were responding to the other participant's construal, not the timing of when such construal would occur, future fresh perspective participants showed a relatively small decline in interest ( $M = 5.43$ ,  $SD = 19.63$ ; paired  $t(350) = 5.19$ ,  $p < .001$ ,  $d = .18$ ). This decline was smaller than those considering another's concurrent stale perspective,  $F(1, 702) = 35.67$ ,  $p < .001$ ,  $\eta_p^2 = .05$ . Unexpectedly, it was even larger than those considering a concurrent fresh perspective,  $F(1, 718) = 10.67$ ,  $p = .001$ ,  $\eta_p^2 = .02$ . Although this final effect was not predicted a priori, it makes clear that the fresh perspective stems from the nature, not the timing, of the other's experience.

### Study 5. Awe, Through One's Own (Previous) Eyes

Table S5

#### *Self's and Predicted Other's Responses (Study 5)*

	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Control Condition: Self 3 <sup>rd</sup> vs. Other 3 <sup>rd</sup>	125	66.20 (28.21)	81.33 (16.58)	.38**	6.34	<.001
Self's Fresh:	114	75.00	82.05	.67**	3.98	<.001

Self 3 <sup>rd</sup> vs. Other 3 <sup>rd</sup>		(24.90)	(20.98)			
Other's Fresh Condition: Self 3 vs. Other 1	94	76.54 (22.64)	84.40 (19.79)	.70**	4.62	<.001

Note. \*\* $p < .01$ , standard deviation in parentheses. Comparisons are for a participant's own experience at time point 3 versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first (Other 1<sup>st</sup>) and third time (Other 3<sup>rd</sup>), broken down by condition.

*Attention check question:*

In this task you watched a video three times. Immediately after watching the video a third time you answered questions about all of the following EXCEPT...

- Your own experience at that time.
- Your own experience when you first watched the video.
- A future participant's experience.
- The experience of a participant taking this experiment at the same time as you.

*Analysis including the attention failure:*

Showing that repeated exposure to the clip reduced participants' reported experience of awe, we observed a significant decline from time 1 ( $M = 81.57$ ,  $SD = 18.88$ ) to time 2 ( $M = 77.78$ ,  $SD = 21.12$ ), paired  $t(473) = 7.21$ ,  $p < .01$ ,  $d = .19$ ). To assess whether the perspective manipulation had an effect on how much participants sustained their awe response on the third viewing, we submitted the awe composite to a 2(time: 2 or 3) X 3(perspective: other's fresh, self's fresh, control) mixed-model ANOVA, with only the first factor measured within-subjects. A significant Time X Perspective interaction showed that the manipulation did change participants' rate of further habituation,  $F(2, 464) = 11.46$ ,  $p < .001$ ,  $\eta_p^2 = .047$ . To unpack the interaction, we conducted a series of 2(time: Time 2 vs. Time 3) X 2(perspective) ANOVAs.

As we observed in previous studies, participants who watched the Planet Earth video for

the third time knowing their paired participant was watching it for the first time showed a smaller additional decline in awe ( $M=1.50$ ,  $SD = 17.80$ ; paired  $t(143) = 1.01$ ,  $p = .31$ ,  $d = .07$ ) compared to those in the control condition ( $M=9.84$ ,  $SD = 18.56$ ; paired  $t(168) = 6.89$ ,  $p < .001$ ,  $d = .40$ ),  $F(1,311) = 16.29$ ,  $p < .001$ ,  $\eta_p^2 = .05$ . We also found that participants considering their own fresh perspective showed a smaller decline in awe ( $M = 3.28$ ,  $SD = 11.89$ ;  $t(153) = 3.43$ ,  $p = .001$ ,  $d = .14$ ) than those in the control condition watching it for the third time,  $F(1, 321) = 13.97$ ,  $p < .01$ ,  $\eta_p^2 = .04$ . Suggesting that the vicarious construal effect is driven by actively adopting a fresh construal, as opposed to the social process of emotional contagion, the rate of habituation was similar in the self's and other's fresh perspective conditions,  $F(1, 296) = 1.05$ ,  $p = .31$ ,  $\eta_p^2 = .004$ . suggesting the path to curbing habituation is not limited to considering social construals.

#### Study 6. Anchoring and Adjusting from Estimated Others' Responses

Table S6

##### *Self's and Predicted Other's Responses (Study 6)*

	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Post-Hoc Fresh Perspective: Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	142	67.33 (28.10)	79.90 (19.25)	.59**	6.54	<.001
Pre-Exposure Fresh Perspective: Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	168	72.51 (27.19)	82.62 (16.57)	.62**	6.21	<.001

Note. \*\* $p < .01$ , standard deviation in parentheses. Comparisons are for a participant's own experience at time point 3 versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first time, broken down by condition.

##### *Attention check question:*

In this task you watched a video three times. What did we tell you about the third time you watched the video?

- That you would be predicting the responses of a future participant, except this other participant would be watching the video for the second time.
- That you would be predicting the responses of a future participant, except this other participant would be watching the video for the first time.
- That you would be predicting the responses of a future participant, and that they too would be watching the video for the third time.
- That you would be predicting the responses of a future participant, except this other participant would be watching the video for the fourth time.

*Analysis including the attention failure:*

Demonstrating that habituation occurred upon repeated exposure, the intensity of participants' awe responses declined from time 1 ( $M=80.50$ ,  $SD=20.61$ ) to time 2 ( $M=76.61$ ,  $SD=23.10$ ), paired  $t(412)=6.31$ ,  $p<.001$ ,  $d=.18$ . But did our classic pre-exposure fresh perspective manipulation curb habituation compared to the new manipulation that anchored participant on a fresh perspective post-hoc? We submitted the awe composite to a two-way 2(time: 2 or 3) X 2(fresh perspective: pre-experience or post hoc) mixed-model ANOVA, with only the first factor measured within-subjects. A significant Time X Perspective interaction confirmed our hypotheses,  $F(1, 411)=5.85$ ,  $p=.016$ ,  $\eta_p^2=.01$ .

Participants in our new post-hoc fresh perspective manipulation showed a significant decline in awe from time 2 to time 3 ( $M_{\text{dif}}=9.22$ ,  $SD=17.14$ ; paired  $t(211)=7.83$ ,  $p<.001$ ,  $d=.36$ ). But participants in our classic pre-emptive fresh perspective did show reduced, though still significant, habituation ( $M=5.39$ ,  $SD=14.85$ ; paired  $t(200)=5.15$ ,  $p<.001$ ,  $d=.22$ ). That is, even though participants in the post hoc condition had been anchored on the perceived experience of the other participant just before stating their own time 3 experience, they showed a

stronger diminishment in their self-reported awe response. In other words, the vicarious construal effect seems to stem from the influence of the manipulation on people's subsequent interpretation of the stimulus, not merely on their being anchored to a high estimate of the yoked participant's likely reaction.

### Study 7. Preemptive Habituation

Table S7

*Self's and Predicted Other's Responses (Study 7)*

	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Paired at time 1, Other 1 <sup>st</sup>						
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	155	69.85 (27.06)	70.48 (22.23)	.88**	-.60	.55
Paired at time 1, Other 3 <sup>rd</sup>						
Self 1 <sup>st</sup> vs. Other 1 <sup>st</sup>	161	63.61 (26.45)	58.38 (26.55)	.78**	3.78	<.001
Paired at time 3, Other 1 <sup>st</sup>						
Self 3 <sup>rd</sup> vs. Other 3 <sup>rd</sup>	159	57.72 (30.18)	75.18 (22.01)	.76**	11.11	<.001
Paired at time 3, Other 3 <sup>rd</sup>						
Self 3 <sup>rd</sup> vs. Other 3 <sup>rd</sup>	146	54.74 (31.78)	55.77 (28.67)	.92**	-.98	.33

Note. \*\* $p < .01$ , standard deviation in parentheses. Comparisons are for a participant's own experience at time points 1 (Paired at time 1) and 3 (Paired at time 3) versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first (Other 1<sup>st</sup>) and third (Other 3<sup>rd</sup>), broken down by condition. For condition, "Paired" indicates the time point at which participants were told to vicariously construe.

*Attention check question:*

What is the video clip you have watched just now about?

- It was a comical improvisation of a scene from the film, *Titanic*.
- A couple makes out after an argument.
- A couple prepares for a Christmas play and gets into an argument.
- A zombie couple wants to wear red sweaters.

*Analysis including the attention failure:*

To understand whether the fresh and stale perspective manipulations influenced those watching the humorous clip differently for the first or third times, we performed a two-way 2(perspective: fresh or stale) X 2(intervention: first or third exposure) ANCOVA on the relevant humor composites. For those who received the intervention before the first or third exposure, the relevant composite was Time 1 or Time 3, respectively. And indeed, humor ratings of the baseline clip predicted significant variance in the ANCOVA,  $F(1, 618) = 293.88, p < .001, \eta_p^2 = .32$ .

Demonstrating between-subjects that participants habituate with additional exposure, those in the time 3 intervention condition ( $M = 56.29, SD = 23.75$ ) found the clip less humorous than those in the time 1 condition ( $M = 66.99, SD = 23.71$ ),  $F(1, 618) = 31.63, p < .001, \eta_p^2 = .05$ . But also, we found a main effect of perspective demonstrating that fresh participants—those paired with another who was watching the clip for the first time—had a stronger humor response toward the stimulus ( $M = 63.99, SD = 23.79$ ) than those paired with someone who had already been exposed to the clip multiple times ( $M = 59.29, SD = 23.69$ ),  $F(1, 618) = 6.10, p = .014, \eta_p^2 = .01$ . Demonstrating that the vicarious construal effect reflects the influence of adopting another's novel construal, even if one has not previously experienced that construal, the Perspective X Intervention interaction was not significant,  $F < 1$ . That is, the perspective manipulation had a similarly sized effect regardless of whether it was administered before the third exposure (when the fresh perspective was a return to the past) or the first exposure (when the stale perspective was yet to be genuinely experienced).

**Study 8.**

Table S8

*Self's and Predicted Other's Responses (Study 8)*

	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Fresh Perspective Condition: Self 3 <sup>rd</sup> vs. Other 1 <sup>st</sup>	446	78.04 (26.34)	80.51 (22.34)	.64**	6.16	.013
Control Condition: Self 3 <sup>rd</sup> vs. Other 3 <sup>rd</sup>	446	59.49 (34.51)	59.49 (36.97)	.85**	2.09	<.001

Note. \*\* $p < .01$ , standard deviation in parentheses. Comparisons are for a participant's own experience at time point 3 (Self 3<sup>rd</sup>) versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first (Other 1<sup>st</sup>) and third time (other 3<sup>rd</sup>), broken down by condition.

*Attention check question:*

Which statement is true?

- I was asked to indicate how I felt when I watched a video clip for the third time.
- I was asked to estimate how the next participant will report feeling when they watch a video clip for the first time.
- I was asked to rate how happy I felt when watching the clip a second time.
- I was asked to indicate how likely it is the other participant would choose to watch the clip again.

*Analysis including the attention failure:*

To control for individual differences in how sad participants found the clip, we used participants' Time 1 sadness ratings as a covariate. We submitted to an ANCOVA participants' estimates of how sad an untreated other would find the clip on the third viewing. Consistent with our hypotheses, those in the fresh perspective condition thought the clip was legitimately sadder on its third viewing. That is, those who watched the video a third time from a fresh perspective

thought an untreated other would find the video sadder on the third viewing ( $M = 65.45$ ,  $SE = 1.27$ ) than did those in the control condition ( $M = 59.92$ ,  $SE = 1.31$ ),  $F(1, 972) = 9.22$ ,  $p = .002$ ,  $\eta_p^2 = .01$ .

These results not only bolster our interpretation that fresh perspective participants felt sadder while viewing the clip for the third time, but support that participants failed to fully appreciate the manipulation's role in that experience. If participants were simply "playing along" and saying they felt sadder because the manipulation prompted them to consider how someone who was especially sad would respond, it is unclear why they would estimate that an untreated other would find the clip to be particularly sad. Our results are consistent with our contention that participants were blind to the power of construal—remarkably, even a construal that they intentionally adopted—in shaping their own experience. Participants attributed their elevated sadness to the power of the stimulus, not to the power of the manipulation.

### Study 9a. Liking

Table S9

#### *Self's and Predicted Other's Responses (Study 9a)*

Self vs. Other	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Rating high, other 1 <sup>st</sup>	75	62.13 (29.66)	86.27 (12.18)	.75**	-7.26	<.001
Rating high, self 1 <sup>st</sup>	51	52.36 (30.36)	83.89 (14.70)	.09	-6.93	<.001
Rating low, other 1 <sup>st</sup>	76	49.00 (33.29)	34.71 (24.88)	.69**	5.18	<.001
Rating low, self 1 <sup>st</sup>	43	43.06 (33.24)	30.06 (24.98)	.74**	3.84	<.001

Note. \*\* $p < .01$ , standard deviation in parentheses. Comparisons are for a participant's own experience after watching the video versus their prediction of another yoked participant's experience, broken down by condition. Other 1<sup>st</sup> indicates participants received another's ratings of the anime genre



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before watching the video, and self 1<sup>st</sup> indicates participants received another's ratings after watching the video.

*Attention check question:*

For the experiment you were asked to predict how much a future participant may enjoy a film clip. Before making this prediction, you received information indicating how the participant scored on a 1 to 10 scale for how much they like (or think they would like) Japanese anime TV/films. What was that rating?

- 2 on 1 to 10 scale
- 5 on 1 to 10 scale
- 9 on 1 to 10 scale
- 0 on 1 to 10 scale

*Analysis including the attention failure:*

To determine whether considering the perspective of an anime fan or nonfan changed one's own enjoyment of the clip, we submitted participants' own enjoyment composites to a two-way 2(perspective: likes genre or dislikes genre) X 2(order: self-reported enjoyment first or social estimate first) ANCOVA. Participants' baseline liking for Japanese anime served as a covariate. Unsurprisingly, the covariate accounted for significant variance in participants' self-reported liking for the clip,  $F(1, 304) = 130.25, p < .001, \eta_p^2 = .30$ . But consistent with our central hypothesis, we observed a significant main effect of the perspective manipulation,  $F(1, 304) = 7.06, p = .008, \eta_p^2 = .023$ . Participants preparing to predict the experience of someone who likes anime found the clip to be more enjoyable themselves ( $M = 57.58, SD = 26.14$ ) compared with those considering the perspective of those who do not like the genre ( $M = 49.36, SD = 27.06$ ). Addressing the artifactual alternative accounts, the order did not moderate these results,

$F < 1$ . In summary, the vicarious construal effect did not merely allow participants to have experiences that they previously or would soon (with repeated exposures) have. Instead, it allowed participants to experience stimuli through a lens they would not ordinarily possess.

### Study 9b: Learning About Oneself by Trying to Understand Others

Table S10

#### *Self's and Predicted Other's Responses (Study 9b)*

Self vs. Other	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Rating high, other 1 <sup>st</sup>	179	38.00 (32.62)	80.57 (17.52)	.17*	-16.62	<.001
Rating high, self 1 <sup>st</sup>	177	38.59 (33.00)	83.14 (18.40)	.30**	-18.21	<.001
Rating low, other 1 <sup>st</sup>	167	31.36 (32.28)	23.41 (23.17)	.56**	3.78	<.001
Rating low, self 1 <sup>st</sup>	145	34.13 (33.03)	19.63 (20.30)	.57**	6.47	<.001

*Note.* \* $p < .05$ , \*\* $p < .01$ , standard deviation in parentheses. Comparisons are for a participant's own experience after watching the video versus their prediction of another yoked participant's experience, broken down by condition. Other 1st indicates participants received another's ratings of the anime genre before watching the video, and Self 1st indicates participants received another's ratings after watching the video.

#### *Attention check question:*

For the experiment you were asked to predict how much a future participant may enjoy a film clip. Before making this prediction, you received information indicating how the participant scored on a 1 to 10 scale for how much they like (or think they would like) Japanese anime TV/films. What was that rating?

- 2 on 1 to 10 scale
- 5 on 1 to 10 scale

- 9 on 1 to 10 scale
- 0 on 1 to 10 scale

*Analysis including the attention failure:*

As in Study 9a, considering the perspective of someone who liked anime helped one to enjoy the film more than did considering the perspective of an anime nonfan. That is, we observed a main effect of perspective,  $F(1, 834) = 7.88, p = .005, \eta_p^2 = .01$ . Participants yoked to another participant who likes anime enjoyed the clip more ( $M = 39.96, SD = 26.18$ ) than participants yoked to a participant who dislikes anime ( $M = 34.87, SD = 26.22$ ). Addressing the same artifactual accounts that Study 7a ruled out, we observed no Perspective X Order interaction,  $F < 1$ .

But did experiencing the stimulus through another's eyes lead to a more or less enjoyable experience that was attributed to the manipulation, or to one's own true or stable resonance with such stimuli? To answer this additional question, we submitted the preference for anime composite to the same two-way ANCOVA. However, the same perspective main effect did not emerge,  $F(1, 833) = 1.63, p = .20, \eta_p^2 = .002$ . That is, participants yoked to the anime fan did not think that they themselves would enjoy consuming more Japanese anime in the future ( $M = 4.00, SD = 1.93$ ) than did those yoked to an anime nonfan ( $M = 3.83, SD = 1.93$ ). There was no interaction with the order manipulation,  $F < 1$ .

### Study 10: Other's Same or Different Experience

Table S11

*Self's and Predicted Other's Responses (Study 10)*

Self vs. Other	N	Self	Other	<i>r</i>	<i>t</i>	<i>p</i>
Googly Movie Same Clip	284	59.79	70.08	.80**	-8.97	<.001

		(31.90)	(25.20)			
Different Clip	279	57.77 (31.40)	80.67 (17.74)	.43**	-13.37	<.001
Control	277	48.90 (31.58)	65.15 (26.29)	.74**	-12.56	<.001
Driving Conan Movie						
Same Clip	288	69.76 (27.33)	79.90 (20.20)	.57**	-7.49	<.001
Different Clip	303	70.06 (26.36)	68.85 (24.64)	.13*	.63	.53
Control	311	62.02 (29.96)	79.69 (21.04)	.57**	-12.45	<.001

*Note.* \* $p < .05$ , \*\* $p < .01$ , standard deviation in parentheses. Comparisons are for a participant's own experience at time point 3 versus their prediction of the other participant's experience when the other participant ostensibly watched the video for the first time, broken down by condition.

*Attention check question:*

Which statement is true?

- The last video I watched was Googly Eyes, and I made a prediction about someone who will watch Googly Eyes.
- The last video I watched was Googly Eyes, and I made a prediction about someone who will watch Driving Lesson.
- The last video I watched was Driving Lesson, and I made a prediction about someone who will watch Driving Lesson.
- The last video I watched was Driving Lesson, and I made a prediction about someone who will watch Googly Eyes.

*Analysis including the attention failure:*

Demonstrating that habituation was at play, participants found whichever clip they watched

second to be less humorous when watching it for the second time ( $M = 67.58$ ,  $SD = 27.91$ ) than when watching it for the first time ( $M = 74.75$ ,  $SD = 19.18$ ),  $F(1, 1853) = 231.38$ ,  $p < .001$ ,  $d = .30$ . But how did our manipulations change how much participants habituated further from the second to the third viewing? We submitted the amusement composite to a 3(perspective: fresh-same, fresh-different, or control) X 2(time: 2<sup>nd</sup> viewing or 3<sup>rd</sup> viewing) X 2(habituation target: Googly Eyes vs. Driving Lesson) mixed model. Only the second factor was measured within-subjects.

Showing that our perspective manipulation affected participants' rate of subsequent habituation, the Perspective X Time interaction was significant,  $F(2, 1848) = 55.44$ ,  $p < .001$ ,  $\eta_p^2 = .06$ . This crucial effect did not further interact with the habituation target, suggesting that our effects emerged similarly regardless of which video participants watched repeatedly,  $F(2, 1848) = 1.36$ ,  $p = .25$ ,  $\eta_{\text{partial}}^2 < .001$ . But to test our more specific hypotheses, we conducted a series of 2(Perspective) X 2(Time) ANOVAs. This permitted us to understand which between-condition differences were driving the omnibus interaction.

First, we observed a significant 3(perspective: fresh-same, fresh-different, or control) X 2(time: 2<sup>nd</sup> viewing or 3<sup>rd</sup> viewing),  $F(2, 1851) = 55.44$ ,  $p < .001$ ,  $\eta_p^2 = .06$ . Figure X depicts the interaction. Although participants in the control condition continued to show a substantial decline in their assessment of the repeatedly-shown clip as humorous ( $M_{\text{dif}} = 11.31$ ,  $SD = 17.45$ ), those who considered the experience of another participant watching a *different* clip for the first time showed a smaller decline ( $M = 4.50$ ,  $SD = 13.42$ ),  $F(1, 1259) = 60.85$ ,  $p < .001$ ,  $\eta_p^2 = .05$ . But crucially, those who considered the experience of another participant watching the *same* clip for the first time showed a further significant decline ( $M = 2.50$ ,  $SD = 14.94$ ),  $F(1, 1238) = 6.17$ ,  $p = .013$ ,  $\eta_p^2 = .005$ .

## **Did Our Studies Capture a Vicarious Construal Effect, or a Demand Effect?**

*Attention check question:*

Which statement is true?

- You guessed what the researcher of the other HIT expects the participants in that study to respond while watching "Googly Eyes". Before watching the clip for the third time, the participants in the other study were told to predict another participant's response to "Googly Eyes", but while watching it for the first time.
- You guessed what the researcher of the other HIT expects the participants in that study to respond while watching "Driving Lesson". Before watching the clip for the third time, the participants in the other study were told to predict another participant's response to "Driving Lesson", while watching it for the first time.
- You guessed what the researcher of the other HIT expects the participants in that study to respond while watching "Googly Eyes". Before watching the clip for the third time, the participants in the other study were told to predict another participant's response to "Googly Eyes", while also watching it for the third time.
- You guessed what the researcher of the other HIT expects the participants in that study to respond while watching "Googly Eyes" for the third time. Before watching the clip for the third time, the participants in the other study were told to predict another participant's response to "Driving Lesson", while watching it for the first time.

*Analysis including the attention failure:*

If the VCE is merely a product of demand, then participants' guesses about the results should roughly match the results actually observed in our main studies. One hypothesized effect that participants easily anticipated was that of habituation. They understood that participants

would be expected to respond less intensely at time 3 ( $M = 51.51$ ,  $SD = 28.88$ ) than at time 2 ( $M = 62.83$ ,  $SD = 25.21$ ),  $t(1635) = 24.60$ ,  $d = .422$ . But beyond this basic understanding that habituation would emerge ( $M_{\text{dif}} = 11.32$ ,  $SD = 18.62$ ), participants' intuitions were more muddled.

We proceeded to test participants' intuitions about how the conditions would change the rate of habituation. First, participants were directionally accurate in appreciating that those in the fresh perspective condition would experience slowed habituation ( $M_{\text{dif}} = 10.96$ ,  $SD = 18.50$ ) compared to those in the stale perspective condition ( $M_{\text{dif}} = 13.18$ ,  $SD = 16.51$ ), but this expectation was only marginally significant,  $t(816) = 1.81$ ,  $p = .07$ ,  $d = .13$ . Or for broader context, whereas the fresh perspective condition reduced the rate of habituation by  $d = .63$  in Study 10, those charged with guessing what the experimenters wanted to hear anticipated a much smaller (and not reliable) effect.

Second, did participants anticipate a more nuanced feature of the VCE—that it should be stronger when considering someone approaching the same stimulus than a different one? To the contrary, participants thought taking a fresh perspective on the same stimulus ( $M_{\text{dif}} = 10.96$ ,  $SD = 18.50$ ) would be equivalent to taking a fresh perspective on a different one ( $M_{\text{dif}} = 9.78$ ,  $SD = 18.49$ ),  $t < 1$ ,  $d = .06$ . In Study 10, this difference was clearly reliable,  $t(596) = 2.96$ ,  $p = .003$ ,  $d = .24$ . Once again, this mismatch is hard to square with a concern that participants are merely displaying a demand effect—responding how they thought the experimenters wanted them to.

Third, although we found that the rate of habituation was slowed in the fresh-perspective-different-stimulus condition compared to the stale perspective one,  $d = .44$ , participants did not intuit this gap ( $M_{\text{dif}} = 11.14$ ,  $SD = 20.49$  vs.  $M_{\text{dif}} = 10.96$ ,  $SD = 18.50$ ;  $t(848) = .14$ ,  $p = .89$ ,  $d = .01$ ). Although this gap was less central to our theorizing, the mismatch between expectations

and actual reported experience helps to speak against the impact of demand. Combined with the various features of our study designed to rule out other threats to measurement validity, these results provide additional assurance that our effects did not reflect participants reporting what they thought experimenters wanted to hear, but instead what they experienced.