
Attributional Inference Across Cultures: Similar Automatic Attributions and Different Controlled Corrections

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Five studies examined the automatic and controlled components of attributional inference in U.S. and East Asian (EA) samples. Studies 1 through 3 used variations of the “anxious woman” paradigm, manipulating the inferential goal (dispositional or situational) and the normative impact of situational constraint information (discounting or augmenting). In each study, U.S. and EA participants under cognitive load produced strong automatic attributions to the focus of their inferential goal (dispositional or situational). Compared with the U.S. cognitive load participants, U.S. no load participants corrected their attributions according to the normative rules of inference. In contrast, EA no load participants corrected in the direction of situational causality, even when the specific content of the situational information provided should have promoted stronger dispositional inferences. Studies 4 and 5 examined and ruled out alternative accounts. Results are discussed in terms of a situational causality heuristic present in EA individuals.

Keywords: attribution; culture; automaticity; control

Although it is clear that culture shapes our social psychological epistemology in general (Fiske, Kitayama, Markus, & Nisbett, 1998), little is known about the extent to which culture differentially affects the automatic and controlled aspects of social inference processes (Knowles, Morris, Chiu, & Hong, 2001). Numerous studies suggest that Western cultures promote lay dispositionalism and the correspondence bias (Gilbert & Malone, 1995; Ross & Nisbett, 1991) such that dispositional explanations of behavior are preferred, whereas East Asian (EA) cultures tend to encourage both dispositional and situational explanations of behavior (Choi, Nisbett, & Norenzayan, 1999; Markus & Kitayama,

1991; Morris & Peng, 1994; Nisbett, 2003; Norenzayan, Choi, & Nisbett, 2002). It remains to be discovered, however, whether these cultural differences are limited to controlled processes, guided by conscious theories and motivation, or if they extend to the automatic habits of social inference processes. In five studies, we explored the impact of culture on the automatic and controlled mechanisms of attributional inference.

Dual-Process Models of Attribution

The most current iteration of dual-process models of attribution (Lieberman, Gaunt, Gilbert, & Trope, 2002) describes attributional inference as starting with an inferential goal that automatically activates a habitual inference process linked to that goal (Bargh, 1989). The attribution produced by the automatic inferential habit is subsequently corrected by a theory-driven controlled process (Wegener & Petty, 1995) if the individual is motivated and has cognitive resources available. Two different attributional sequences, the D-sequence and the S-sequence, each consisting of a goal, a habitual inference, and a theory-driven correction, can be set in motion depending on the inferential goal (see Figure 1). The D-

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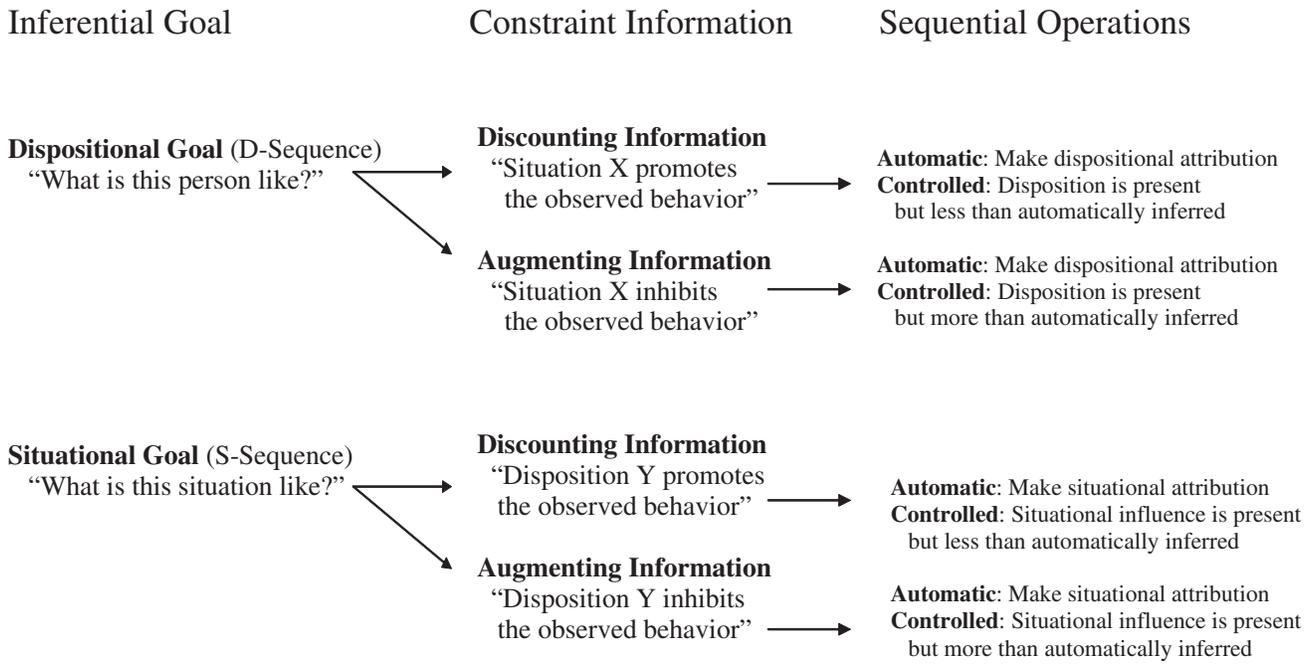


Figure 1 Sequential operations model of dispositional (D-sequence) and situational (S-sequence) attribution.

SOURCE: Adapted from Gilbert (1989) and Krull (1993).

NOTE: S-sequence (augmenting) has not been studied; thus, the proposed automatic and controlled processes are hypothetical.

sequence occurs when a dispositional inference goal is present (“Is this woman anxious in general?”) such that the habitual inference is an automatic attribution of observed behavior to the target’s disposition, resulting in the correspondence bias. If consciously controlled processing resources are available, and the observer is motivated, the initial attribution will be corrected according to an attributional theory of situational constraints on behavior (Gilbert, Pelham, & Krull, 1988). The D-sequence presupposes that people possess an attributional theory of situational factors such that the presence of situational factors promoting the observed behavior indicate that the dispositional cause should be discounted. Thus, during D-sequence discounting, perceivers would correct their initial attribution to make a weaker dispositional attribution. Alternatively, situational factors inhibiting an observed behavior indicate that the dispositional cause should be augmented. During D-sequence augmenting, perceivers would correct their initial attribution to make a stronger dispositional attribution.

In contrast to the D-sequence, the S-sequence occurs when a situational inference goal is present (“Is this woman in an anxiety-provoking situation?”) such that the habitual inference is an automatic attribution of observed behavior to the target’s situation (Krull, 1993). This initial attribution will be updated to take dispo-

sitional information into account if controlled processing resources and motivation are present. The S-sequence presupposes that people possess an attributional theory of dispositional factors such that the presence of factors promoting the observed behavior indicate that the situational cause should be discounted. Thus, during S-sequence discounting, perceivers would correct their initial attribution to make a weaker situational attribution. Alternatively, dispositional factors inhibiting an observed behavior indicate that the situational cause should be augmented. During S-sequence augmenting, perceivers would correct their initial attribution to make a stronger situational attribution.

Goals, Habits, and Theories Across Cultures

According to the model of the attribution process just presented, cultural differences in the process of attribution must be the result of cultural differences in its component parts, namely, attributional goals, habits, and theories. We assume that although the frequency with which D- and S-sequence goals are instantiated may vary by culture, the capacity to adopt each goal when instructed to, as is required by standard attributional inference paradigms, does not. For instance, despite the lay dispositionalism of U.S. samples, these individuals are quite capable of adopting situational inference goals when necessary (Krull, 1993). Therefore, to investigate

cultural differences in attributional inference processes, our focus is directed to habits and theories, the two remaining components of the attribution process, that are invoked in an automatic and controlled manner, respectively.

The cultural landscape is somewhat unclear with respect to the automatic habits of attributional inference. There are a number of studies showing perceptual differences in social inference across cultures (Masuda & Nisbett, 2001; Morris & Peng, 1994), which may be somewhat analogous to automatic habits. However, in the only examination of automatic attribution processes in an EA sample, Knowles et al. (2001) appear to have found a substantial correspondence bias in participants under cognitive load, as is typically found in U.S. samples. These results suggest that EA individuals may have automatic inference habits similar to U.S. individuals. In the current investigation, we hypothesize that U.S. and EA samples will both produce automatic inference biases in the direction of their inferential goal. Our rationale is as follows: Inferential habits are generated through practice. Although individuals raised in the United States and EA countries may invoke, and therefore practice, dispositional and situational inference goals to a different extent, both are likely to have been practiced enough (Norenzayan et al., 2002) to generate both types of automatic inferential habits.

In contrast to inferential habits, there is clear evidence indicating cultural differences in the attributional theories that guide controlled processing corrections. Norenzayan et al. (2002) assessed the extent to which individuals from the United States and an EA country endorsed situationalist and dispositionalist theories of behavior. Dispositionalism was endorsed equally by both groups, but situationalism was endorsed more by EA than U.S. participants. Thus, to the extent that individuals have their controlled processing resources available to apply an attributional theory learned from their specific culture, we expect to see cultural differences in attribution. U.S. samples have demonstrated that when they are not under cognitive load, they apply normative discounting and augmenting principles (Gilbert, 1989). We expect that when EA samples are not under cognitive load, they will apply a situationalist interpretation of behavior, leading to weaker dispositional and stronger situational inferences than the U.S. sample, regardless of the specific content of the contextual information available.

We hypothesize that cultural differences will only emerge when participants are free from cognitive load because conscious theories are symbolic and propositional and consequently depend on controlled processing resources (Lieberman et al., 2002). Given that Norenzayan et al. (2002) obtained explicit reports of

cross-cultural attributional theories, we can assume that such theories are indeed conscious in nature. The results of Knowles et al. (2001) appear to suggest that EA individuals apply a situationalist correction even when they are under cognitive load, when their conscious attributional theories ought to be unavailable. However, the viability of this particular finding depends on the baseline against which their cognitive load results are compared.¹

To summarize, we hypothesize that U.S. and EA samples will produce similar attributions under cognitive load, whether engaged in a D-sequence or S-sequence inference process. However, we hypothesize that the samples will differ when they are not under cognitive load because EA individuals are predicted to apply a situationalist attributional theory that should lead to weaker dispositional and stronger situational attributions than those of U.S. individuals.

OVERVIEW OF STUDIES 1 THROUGH 3

The first three studies used the “anxious woman” cognitive busyness paradigm (Gilbert et al., 1988; Krull, 1993) to examine cross-cultural differences in all previously studied permutations of inferential sequence and constraint information. In Study 1 (D-sequence, discounting), participants judged a woman’s dispositional level of anxiety after watching silent video clips of her behaving anxiously and ostensibly discussing anxiety-provoking topics. In Study 2 (S-sequence, discounting), participants judged how anxiety-provoking a situation would be for most people after watching the same video clips of a woman behaving anxiously after being told that the target was dispositionally anxious. Study 3 (D-sequence, augmenting) was identical to Study 1 except participants were told the woman was discussing non-threatening topics. In each study, half of the participants were born and raised in the United States and half were born and raised in EA countries. In addition, half of each group was placed under cognitive load while watching the video clips and making their attributions.

STUDY 1: D-SEQUENCE (DISCOUNTING)

Method

Participants. Twenty-one U.S. (11 women) and 18 EA (12 women) individuals were recruited from graduate courses in math and physics at Harvard University and paid \$5 for their participation. EA participants had been in the United States no more than 6 years ($M = 1.12$) and were from Korea (8), China (7), Japan (2), and Hong Kong (1).

Procedure. Participants were informed that they would be making personality ratings of a target after watching a

series of video clips of that individual. Participants were shown five videocassettes, each ostensibly with a different target, and were asked to choose one videotape to view. All tapes had an identical set of video clips taken from the “anxious woman” clips used in previous research (Gilbert et al., 1988). Participants were then shown the personality ratings they would be making about this target after watching the video and were told, “It is important that you indicate what kind of person you think the target is in her day-to-day life, not just how she was behaving in the video clips.” Participants were told that they would be watching short clips of the target discussing various topics but that the sound would be turned off to protect the target’s anonymity. Participants were given a list of the seven topics that the target was ostensibly discussing. These topics were public humiliation, hidden secrets, sexual fantasies, favorite hobbies, embarrassing moments, ideal vacations, and personal failures. The topics served as situational constraint information that, when taken into account, should lead to discounting of the dispositional hypothesis to explain the target’s behavior (“She was talking about topics that would make anyone seem anxious so maybe she is not all that anxious in general”). At this point, the experimenter asked whether the participant understood the topics being discussed and the ratings they would later make, explaining anything that was unclear. EA participants who were not able to fully understand either the ratings or the topics were not run through the rest of the experiment. The ratings sheet and discussion topics were left in front of the participant for the duration of the experiment.

Participants were then presented with a series of seven clips, each 20 s in length, showing the target female sitting at a table talking and behaving anxiously. After all of the clips had been viewed, participants completed two ratings of dispositional anxiety on 13-point scales. The first item, “To what extent is the person you watched in the video clips generally comfortable in social situations?” had endpoints anchored by *very uncomfortable* and *very comfortable* (reverse-scored). The second item, “To what extent is the person you watched in the video clips generally anxious with people?” had endpoints anchored by *very relaxed* and *very anxious*. The two attributional ratings were combined to form a composite measure (Spearman-Brown $R^{SB} = .71$).

Half of the participants were placed under cognitive load while viewing the clips and making subsequent attributions. A tone-counting task was used in which participants heard a series of tones at a rate of one per second, each at one of three pitches, and were required to keep track of the number of tones at the lowest pitch (Lieberman, Ochsner, Gilbert, & Schacter, 2001).

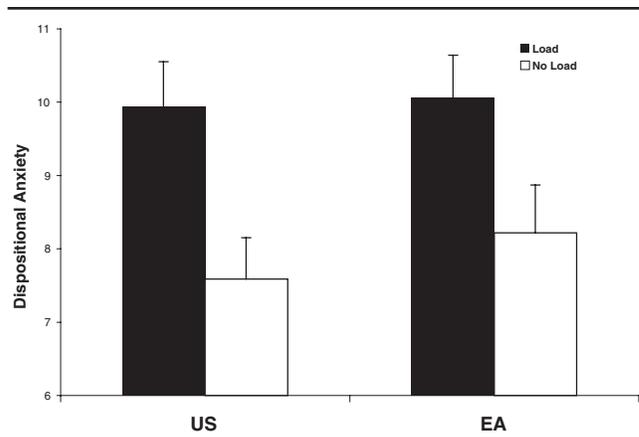


Figure 2 Composite dispositional anxiety ratings made in Study 1 (Dissequence, discounting) as a function of participant culture and cognitive load condition.

Results and Discussion

For both load and no load conditions, the EA and U.S. samples made strikingly similar attributions. As seen in Figure 2, both groups exhibited a robust correspondence bias under cognitive load relative to the scale midpoint: $t_{US}(8) = 8.46, p < .001$, $t_{EA}(8) = 6.76, p < .001$, with ratings comparable to those obtained in the original research using this paradigm (Gilbert et al., 1988). In addition, ratings made under cognitive load did not vary across culture, $t(17) = 0.50, p > .2$. In other words, given a dispositional inference goal, both groups made similar correspondent inferences to the target’s disposition when they were under load. For the U.S. sample, a larger correspondence bias was observed under load as compared to the no load condition, $t(19) = 3.57, p < .005$. The same pattern of means was observed in the EA sample; however, only marginal significance was achieved, $t(16) = 1.77, p < .1$. Confirming the pattern suggested by these pairwise comparisons, there was an overall main effect of cognitive load, $F(1, 34) = 12.01, p < .005$; however, there was no main effect of culture, $F(1, 34) = 0.20, p > .2$, and no Cognitive Load \times Culture interaction effect, $F(1, 34) = 0.19, p > .2$.

Thus, when given a dispositional goal, members of both cultures showed evidence of automatic correspondent inferences to the disposition. No load participants from both cultures, who had the cognitive resources available to apply conscious attributional theories, also showed evidence of correcting their initial attributions, indicating that they took into account that the target had been asked to discuss anxiety-provoking topics. Although we believe there are cultural differences in conscious attributional theories, Study 1 was not an ideal test of these differences because both the normative the-

ory of attribution and a situationalist theory promote similar corrections to automatic inferences. Studies 2 and 3 were designed to more clearly test for the attributional consequences of differing attributional theories in U.S. and EA individuals by examining conditions under which the constraint information normatively leads to weaker situational attributions (Study 2) or stronger dispositional attributions (Study 3). In each case, the corrections associated with the normative theory of attribution are in the opposite direction of those associated with a situationalist theory.

STUDY 2: S-SEQUENCE (DISCOUNTING)

Method

Participants. Forty-four U.S. (28 women) and 41 EA (21 women) individuals were recruited at the University of California, Los Angeles, after responding to a flyer and were paid \$5 for their participation. EA participants had been in the United States no more than 6 years ($M = 3.58$) and were from Hong Kong (13), China (12), Taiwan (8), Japan (6), and Korea (2).

Procedure. Study 2 was methodologically similar to Study 1; however, following Krull (1993), participants were given a situational inference goal to determine how anxiety-provoking the situations depicted in the video clips would be for the average person. Rather than receiving the list of discussion topics, participants were given personality information indicating that the target scored high on a measure of trait anxiety. This personality information should have promoted discounting of the situational hypothesis when considered ("She is an anxious person in general, so maybe this situation would not be so anxiety-provoking for the average person"). Before watching the video clips, participants were provided with the three questions on which they would later rate the target's situation. Two questions required participants to rate the nature of the discussion topics on 13-point scales anchored by the phrases *not at all [extremely] anxiety provoking* and *not at all [very] pleasant*. A third question asked participants to rate how anxious the discussion topics would make the average person on a 13-point scale anchored with *not at all [extremely] anxious*. In all other respects, Study 2 was identical to Study 1.

Results and Discussion

A composite variable was created with the two variables that had scale anchors of the words *anxious* or *anxiety* ($R^{SB} = .72$).² Both groups made strong situational inferences under cognitive load relative to the scale midpoint: $t_{US}(21) = 5.75, p < .001, t_{EA}(20) = 3.68, p < .005$. This replicates previous findings by Krull (1993; Krull &

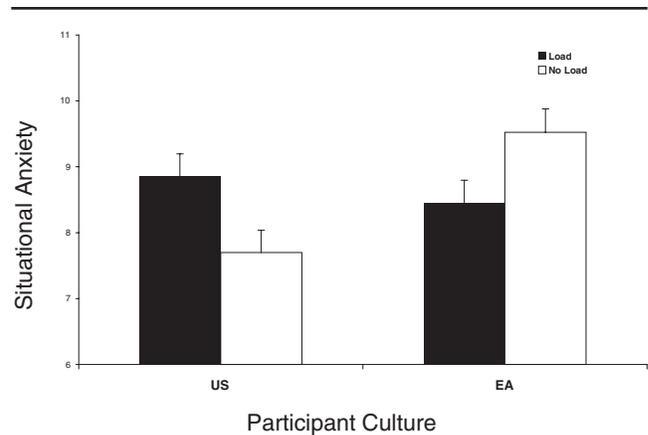


Figure 3 Composite ratings of how anxiety-provoking the situation was in Study 2 (S-sequence, discounting) as a function of participant culture and cognitive load condition.

NOTE: Higher scores indicate stronger situational attributions. EA = East Asian.

Erikson, 1995) for the U.S. sample and extends these findings to an EA sample. As in Study 1, there were no significant differences in the attributions made by U.S. and EA participants under load, $t(41) = 0.81, p > .2$. For the U.S. sample, a stronger attribution to the situation was observed under load as compared to the no load condition, $t(42) = 2.41, p < .05$ (see Figure 3), also replicating Krull. However, the EA sample made stronger attributions to the situation when they were not under load, $t(39) = 2.18, p < .05$, despite the presence of constraint information indicating that the target was an anxious woman, which should have led to discounting. In other words, when EA individuals had their cognitive resources available, and could apply their conscious attributional theory, they corrected their automatic attributions in the opposite direction from what normative rules of attributional logic would dictate ("because the woman is dispositionally anxious, it is probably not the situation that is causing her behavior") and instead endorsed more situational explanations of behavior ("even though the woman is dispositionally anxious, it is probably the situation that is causing her behavior"). Overall, there was a significant Culture \times Cognitive Load interaction, $F(1, 81) = 10.51, p < .005$, such that no load EA participants and no load U.S. participants corrected their automatic attributions in opposite directions. There was also a main effect of culture, such that EA participants made more extreme situational attributions than U.S. participants, $F(1, 81) = 4.19, p < .05$, but no main effect of cognitive load on attributions, $F(1, 81) = 0.02, p > .2$.

In summary, participants from both cultures made strong automatic attributions to their designated inferential goal (i.e., the situation); however, the correction

processes operated differently across cultures. U.S. no load participants made weaker situational inferences, presumably incorporating the dispositional constraint information that the woman was dispositionally anxious, whereas EA no load participants made stronger situational inferences that did not reflect the specific content of the dispositional information given.

This is a puzzling result in light of traditional attributional findings, but there are at least two possible explanations. One possibility is that EA individuals may be less sensitive to or less willing to incorporate dispositional contextual information into their situational inferences. According to this explanation, greater emphasis on the situation may diminish attention given to relevant dispositional information even when EA participants are not under load. Alternatively, as we have hypothesized, it may be the case that EA culture promotes a situationalist theory of behavior, and to the extent that EA individuals have their cognitive resources free, they will correct their automatic inferences accordingly.

In Study 3, we employed a D-sequence augmenting procedure that pits these two accounts against one another. This procedure is similar to Study 1 except that the content of the situational information provided indicates that the situation is quite unlikely to have caused the observed behavior. If EA participants differed from U.S. participants in Study 2 because the constraint information was dispositional, then the cultural differences should disappear in a D-sequence augmenting procedure in which the constraint information is situational. If, however, EA participants use their available cognitive resources to apply a situationalist theory of behavior, then U.S. and EA attributions should look different in a D-sequence augmenting procedure when participants are not under cognitive load. This would occur because the situational constraint information itself should normatively produce stronger dispositional attributions because the constraint information suggests that the situation was unlikely to have caused the observed anxious behavior. Thus, greater attention to the specific content of the situational constraint information should produce stronger dispositional attributions. To our knowledge, this is the first study to disentangle attention to situational information from the implication of the specific content of that information in a cross-cultural attribution paradigm.

STUDY 3: D-SEQUENCE (AUGMENTING)

Method

Participants. Fifty U.S. (31 women) and 48 EA (29 women) individuals were recruited at the University of

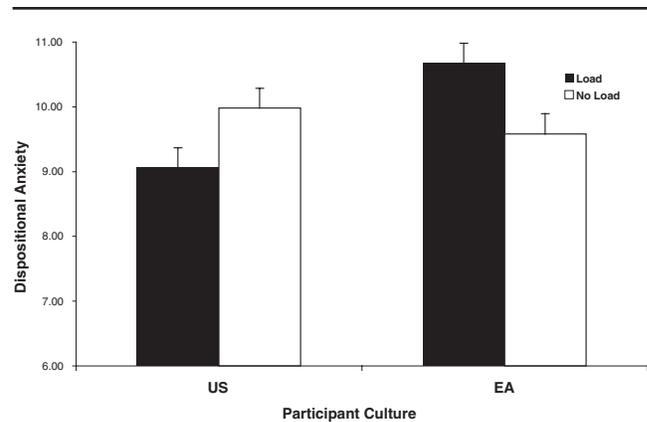


Figure 4 Composite dispositional anxiety ratings made in Study 3 (D-sequence, augmenting) as a function of participant culture and cognitive load condition.

NOTE: Higher scores indicate stronger dispositional attributions. EA = East Asian.

California, Los Angeles, and Santa Monica College after responding to a flyer and were paid \$5 for their participation. EA participants had been in the United States no more than 6 years ($M = 2.93$) and were from Hong Kong (16), Japan (14), China (11), and Taiwan (7).

Procedure. Study 3 was identical to Study 1 except participants were informed that the target was discussing calming topics rather than the anxiety-provoking topics used in Study 1. The seven topics used in Study 3 were taken from Gilbert et al. (1988): fashion trends, travel, great books, favorite hobbies, foreign films, ideal vacation, and best restaurants.

Results and Discussion

Using a composite of the two ratings of dispositional anxiety ($R^{SB} = .76$), both groups made strong correspondent inferences to the target's disposition (i.e., rated her as being very anxious) under cognitive load relative to the scale midpoint, $t_{US}(24) = 6.62, p < .001$, $t_{EA}(23) = 11.58, p < .001$ (see Figure 4). U.S. participants made stronger dispositional attributions in the no load condition, relative to the load condition, $t(48) = 2.53, p < .05$, presumably incorporating the situational constraint information that promotes augmenting of the dispositional attribution ("If she is discussing nonthreatening topics and looks that anxious, she must be *really* anxious in general"). EA participants, in contrast, made weaker dispositional attributions in the no load condition, relative to the load condition, $t(46) = 2.14, p < .05$. Also, for the first time in these studies, U.S. and EA samples differed in their automatic attributions. Surprisingly, EA participants made stronger dispositional attributions under load than did U.S. participants, $t(47) = 3.62, p <$

.001, and consequently, there was a marginally significant main effect of culture such that EA participants made stronger attributions to the target's disposition ($M_{US} = 9.52$, $M_{EA} = 10.13$), $F(1, 98) = 3.82$, $p < .06$. As in Study 2, the Culture \times Cognitive Load interaction was significant, $F(1, 98) = 10.47$, $p < .005$, but the main effect of cognitive load was not, $F(1, 98) = 0.07$, $p > .2$.

Consistent with the preceding studies, U.S. and EA participants in Study 3 made strong automatic attributions to the focus of their inferential goal (i.e., the target's disposition). Study 3 also suggests that EA no load participants were not sensitive to or did not make use of the specific content of the situational constraint information provided because using this information should have led to stronger dispositional attributions than in the load condition. Instead, EA participants appear to have applied a situational causality heuristic when their controlled processing resources were available such that weaker dispositional and stronger situational attributions were made.³ In past studies, attention to situational constraint information and applying a situational causality heuristic both would have led to the same inferential outcome (Choi & Nisbett, 1998) because the specific content of the situational information given always implied that the situation could account for the behavior. Here, for the first time, making use of the available situational information should have led to stronger dispositional attributions because the situational information provided established that the situation was unlikely to have caused the behavior. Thus, in Study 3, attending to and using the situational constraint information would have had different effects than applying a situational causality heuristic. The results of Study 3 suggest that in at least some contexts, EA individuals use a situational causality heuristic without careful consideration of available evidence, even when the available evidence is situational.

STUDY 4: D-SEQUENCE WITH U.S. AND EA TARGETS

Overview

Studies 1, 2, and 3 suggest that EA individuals make automatic attributions that look quite similar to their U.S. counterparts and make controlled processing corrections using a situationalist theory of behavior. Before affirming these conclusions, there are a number of alternative explanations that must be examined. One such account focuses on the attributional target in Studies 1 through 3. In each study, both U.S. and EA participants were making judgments about a U.S. target. It is possible that differential cultural familiarity with the target could affect the attributional processes deployed. If so, the automatic attributional biases seen in these studies

might not occur if EA participants were judging the behavior of an EA target. Another general limitation of the studies thus far is that the magnitude of automatic attributional biases was computed by comparing attributions made under cognitive load to the midpoint on the ratings scale. The scale midpoint is not an ideal anchor for judging attributional bias (Jones, 1979). In addition, it could be argued that Studies 1 through 3 demonstrate a controlled processing "politeness bias" whereby EA participants always try to attribute negative behavior to the situation rather than to the target's dispositions but can only successfully perform this mental operation when they are not under cognitive load.

Study 4 was designed to address each of these limitations of the previous studies. EA individuals were asked to make attributions about both U.S. and EA targets. The valence of the target's behavior also was reversed such that the targets appeared happy rather than anxious. In addition, some targets behaved neutrally to provide a better baseline for assessing the magnitude of the automatic attributional bias. Participants were run through a D-sequence (discounting) paradigm during which they made attributions about the dispositional happiness of two U.S. and two EA targets. One target from each culture appeared to be very happy in their video clip and the other target from each culture appeared neutral in their behavior. Participants were told that all of the targets were asked to tell a funny story, providing a situational explanation for the positive affective behavior seen in half of the targets. We predicted that EA participants would show greater evidence of a correspondence bias when they were under cognitive load than when they were not under load, regardless of whether they were judging U.S. or EA targets.

Method

Participants. Sixty-three EA individuals (36 women) were recruited at the University of California, Los Angeles, and Santa Monica College after responding to a flyer and were paid \$5 for their participation. EA participants had been in the United States no more than 6 years ($M = 1.93$) and were from Japan (37), Hong Kong (8), Korea (7), Taiwan (6), Vietnam (3), and China (2).

Procedure. For Study 4, EA participants were asked to rate the dispositional happiness of four targets (2 EA and 2 U.S. targets) shown in short video clips that were presented with no sound. Participants were provided with situational constraint information that could reasonably account for the appearance of positive affective behavior. Before watching any of the video clips, participants were told that each of the targets had been asked to tell a funny story while they were being videotaped. Participants were told that we were interested in how happy the

targets were in their everyday life rather than how happy the targets appeared in the video clips at that particular moment. Half of the participants were placed under cognitive load while watching the video clips and making their ratings.

Participants were presented with a series of four clips, each 20 s in length, each showing an EA or U.S. target behaving in a happy or neutral manner, with the sound turned off. After each clip, the tape was paused while the participant made two ratings of the just-watched target's dispositional happiness on 13-point scales. The first item, "To what extent is the person you watched in this video clip generally a happy person?" had endpoints anchored by *not at all happy* and *very happy*. The second item, "To what extent is the person you watched in this video clip generally an unhappy person?" had endpoints anchored by *not at all unhappy* and *very unhappy* (reverse-scored). These items were combined to form a composite rating ($R^{SB} = .76$).

Materials. Two EA and two U.S. target individuals (all women) were videotaped for 10 min, each alternating between displaying very cheerful affect and neutral affect while talking. The EA targets were both individuals born and raised in Japan. For each target, a 20-s "happy" clip and a 20-s "neutral" clip were selected. Thus, for each of the four targets, a happy clip and a neutral clip were prepared, for a total of eight clips that were used in the study. Each participant was shown an EA happy, an EA neutral, a U.S. happy, and a U.S. neutral video clip. From each target, either the happy or neutral clip was presented to each participant such that targets were only seen once during an experimental session. Each target was equally likely to be presented as happy or neutral in a given session. The order of clip presentation was counterbalanced across participants. Cognitive load was produced using the tone-counting procedure employed in Studies 1 through 3.

Results and Discussion

We first analyzed whether EA participants made strong correspondent inferences when making attributions for U.S. targets.⁴ As seen in Figure 5, participants made strong correspondent inferences to U.S. targets, as evidenced by higher ratings of dispositional happiness for happy behavior than neutral behavior, $F(1, 61) = 26.75, p < .001$, despite situational information that could account for happy behavior observed in the video clips. Attributions for the neutral behavior of U.S. targets were not significantly different from the scale midpoint, $t(61) = 1.05, p > .2$. Under cognitive load, correspondent inferences to U.S. targets were also stronger to happy ($M_H = 10.39$) than neutral ($M_N = 6.48$) targets, $t(30) = 7.11, p < .001$, revealing the typical correspondence bias,

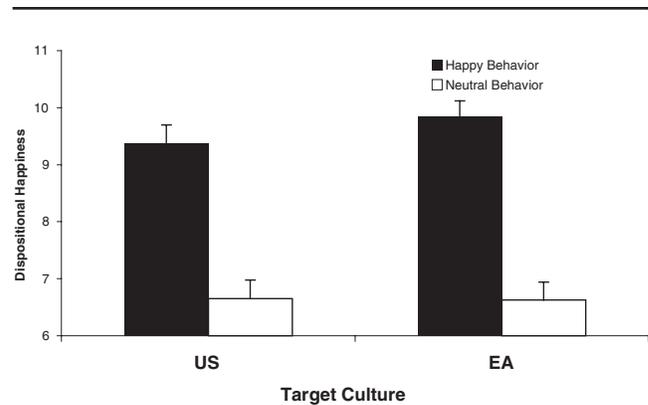


Figure 5 Dispositional happiness ratings made by East Asian (EA) participants observing EA and U.S. targets.

NOTE: Higher scores indicate stronger dispositional attributions.

and replicating Studies 1 to 3. In addition, target behavior interacted with cognitive load such that participants under cognitive load made stronger correspondent inferences to happy, relative to neutral, behavior ($M_H = 10.39, M_N = 6.48$) than did participants who were not under load ($M_H = 8.39, M_N = 6.81$), $F(1, 61) = 4.81, p < .05$.

In addition to the strong correspondent inferences made when viewing U.S. targets, participants also made strong correspondent inferences when viewing EA targets, as evidenced by higher ratings of dispositional happiness for happy behavior than neutral behavior, $F(1, 61) = 55.44, p < .001$. Attributions for the neutral behavior of EA targets were not significantly different from the scale midpoint, $t(61) = 1.19, p > .2$. Under cognitive load, correspondent inferences to EA targets were also stronger to happy ($M_H = 10.50$) than neutral ($M_N = 6.03$) targets, $t(30) = 8.29, p < .001$, indicating that the cognitive load results of Studies 1 to 3 generalize to attributions of EA targets. With EA targets, target behavior once again interacted with cognitive load such that participants under cognitive load made stronger correspondent inferences to happy behavior ($M_H = 10.50, M_N = 6.03$) than did participants who were not under load ($M_H = 9.24, M_N = 7.22$), $F(1, 61) = 7.84, p < .01$.

Culture of the target appears to have had little discernable effect on attribution processes (see Figure 5). There was no significant main effect of target culture on ratings of dispositional happiness, $F(1, 61) = 1.08, p > .2$. Culture also did not interact with the manipulated happiness of target behavior for ratings of dispositional happiness, $F(1, 61) = 0.64, p > .2$. There was a trend toward significance in the Culture \times Cognitive Load interaction, $F(1, 61) = 2.33, p = .13$, such that no load participants rated U.S. targets as somewhat less dispositionally happy than did participants in other conditions.

However, the three-way interaction of Culture \times Load \times Target Behavior was not significant, $F(1, 61) = 0.01, p > .2$.

In summary, EA participants in a D-sequence discounting procedure showed evidence of making stronger correspondent inferences while under cognitive load, as compared to no load participants. Moreover, this effect was present regardless of whether the observed target was an EA or U.S. individual and target culture did not moderate the size of these effects. Taken together, these results argue against the possibility that Studies 1 to 3 obtained their results because EA participants engaged in different attributional processes when confronted with a U.S. target than they would have with an EA target. In addition, the fact that the EA participants corrected in the direction of more situational causality when they were not under cognitive load, even though the trait of interest was a positive trait, argues against a politeness bias account of our results. Finally, attributions for the neutral condition were near the scale midpoint, suggesting that our use of the scale midpoint as a comparison baseline in the previous studies was a reasonable strategy.

STUDY 5: BEHAVIORAL IDENTIFICATION

Overview

Study 5 was conducted to examine another alternative account of the results from Studies 1 to 3. Our conclusions depend on EA and U.S. participants starting with similar interpretations of the observed target behavior ("behavior identifications"; Trope, 1986), such that attributions built on this understanding can be meaningfully compared across cultures. If, however, EA participants interpret behavior differently than U.S. participants, then the subsequent attributions built on these behavioral identifications are not comparable. In addition, situational constraint information may have a different effect on behavioral identifications of EA participants under cognitive load than on U.S. participants under cognitive load. Although Trope and Alfieri (1997) have shown that individuals can automatically use situational information to assist their behavioral identifications, this process might be less automatic when judging targets from another culture.

To examine these issues, EA and U.S. participants were run through a procedure similar to the one used in Study 1; however, in this study, participants were asked to make behavioral identifications rather than dispositional attributions. We hypothesized that there would be no main effect of culture or Culture \times Cognitive Load interaction effect on behavior identifications. It should be noted that the interpretation of behavior identification results is different from the interpretation of dispositional attribution results. Although it may be an error to infer a strong anxious disposition from anxious

behavior, it is not an error to identify this behavior as anxious when the target is clearly acting anxiously. The correspondence bias results from inferring dispositions from behavioral identifications without sufficient consideration of situational causes. It can be entirely rational to use the same situational information that should lead to discounting when making dispositional inferences to lead to more extreme behavior identifications (Trope, 1986).

Method

Participants. Twenty U.S. (10 women) and 24 EA (11 women) individuals were recruited at the University of California, Los Angeles, and Santa Monica College after responding to a flyer and were paid \$5 for their participation. EA participants had been in the United States no more than 6 years ($M = 2.89$) and were from Japan (22), Taiwan (1), and China (1).

Procedure. The procedure was identical to Study 1 except for the inferential goal given to participants and the ratings made by participants. Instead of being asked to make attributions about the target's dispositional anxiety, participants were asked to make behavioral identification ratings of how anxious the target's behavior was in the video clips. Participants were informed, as in Study 1, that the target was discussing anxiety-provoking topics. After viewing the video clips, participants completed two behavioral identification ratings on 13-point scales. The first item, "To what extent did the person in the video clips appear to be comfortable?" had endpoints anchored by *very uncomfortable* and *very comfortable* (reverse-scored). The second item, "To what extent did the person in the video clips appear to be anxious?" had endpoints anchored by *very relaxed* and *very anxious*. These two items were combined to form a composite ($R^{SB} = .76$). Participants were shown the questions before seeing the video clips and were instructed to answer about how the target was appearing at that moment, rather than how the person might be generally in daily life.

Results and Discussion

To examine whether behavioral identification judgments varied by culture and cognitive load, we conducted a 2×2 analysis of variance with these factors. There was a main effect of cognitive load, $F(1, 40) = 7.39, p < .005$, such that participants under cognitive load rated the target's behavior as less anxious ($M = 8.21$) than did no load participants ($M = 9.98$). This result suggests that participants were better able to use the situational constraint information (i.e., that the discussion topics were anxiety-provoking) to disambiguate the behavior when they were not under cognitive load.

There was not, however, a main effect of culture, $F(1, 40) = 0.12$, $p > .2$, with EA participants ($M = 9.21$) and U.S. participants ($M = 8.98$) making similar behavioral identifications. In addition, culture did not interact with cognitive load, $F(1, 40) = 0.64$, $p > .2$. Together, these results suggest that cultural differences in behavioral identification do not account for the attributional effects seen in Studies 1 to 3. Future research combining behavioral identification and attribution in a single study could strengthen this conclusion, although it is unclear whether explicit behavioral identification would contaminate the rest of the attribution process (Wilson et al., 1993).

Although tangential to the main hypotheses of this article, we were somewhat surprised to find a main effect of cognitive load on behavioral identifications because this finding runs counter to the behavioral identification effects found in Trope and Alfieri (1997). In their study, cognitive load had no significant effect on the use of situational constraint information in behavioral identifications. We can only speculate that this difference may have emerged due to differences in our paradigms. In Trope and Alfieri's study, both the situational constraint information and the behavior to be identified were presented verbally; however, in our study, the behavior was nonverbal but the situational constraint was given in words. It is possible that providing the constraint information in the same modality as the behavior allows for more automatic integration of the constraint information into behavioral identifications. For our purposes, it is sufficient to note that these effects, although counter to Trope and Alfieri's findings, did not vary by culture and thus cannot account for our earlier findings.

GENERAL DISCUSSION

In three studies of the automatic and controlled aspects of attributional inference in U.S. and EA samples, two results consistently emerged. First, automatic attributional habits were substantively the same across cultures. In each study, both U.S. and EA participants automatically generated strong attributions to the focus of their inferential goal. In Studies 1 and 3, participants had dispositional goals and made strong automatic attributions to the target's disposition, whereas in Study 2, participants had a situational goal and made strong automatic attributions to the situation. In two of the three studies, the magnitude of this automatic attribution was nearly identical across cultures, whereas in Study 3, EA participants actually produced a larger attribution to the target's disposition. Across studies, the meta-analytic combination (Rosenthal, 1991) of attribution extremity in the direction of the inferential goal was highly significant for both U.S., $Z = 7.55$, $p = 2.12 \times 10^{-14}$, and EA samples, $Z = 7.55$, $p = 2.15 \times 10^{-14}$.

The second result that emerged across Studies 1 to 3 suggests that U.S. and EA participants applied different attributional theories when they were not under cognitive load and therefore able to employ their conscious theories. U.S. participants appeared to have applied the normative principles of augmenting and discounting. In Studies 1 and 2, there was additional information available that provided alternative accounts for the anxious behavior other than the focal cause (i.e., the focus of their inferential goal). U.S. participants responded by discounting the focal cause, making weaker attributions when they were not under cognitive load relative to when they were under load. In Study 3, the additional information provided to participants suggested that the nonfocal cause (e.g., the situation) was particularly unlikely to be a real cause of the anxious behavior. Here, U.S. participants augmented the focal cause, making stronger attributions when they were not under cognitive load.

The attributional corrections made by no load EA participants did not reflect the normative principles of augmenting and discounting. In Study 1, EA no load participants produced very similar attributions to their U.S. counterparts, making weaker dispositional attributions than EA load participants. This might have suggested that EA participants were discounting the focal cause as a function of the constraint information; however, the results of Studies 2 and 3 paint a different picture. In Studies 2 and 3, EA no load participants appeared to have ignored the information provided about the possible role of the nonfocal cause in producing the anxious behavior. In Study 2, participants were informed that the target was dispositionally anxious, thus providing a reason not to attribute her anxious behavior to the situation, yet EA no load participants made more extreme situational attributions than EA load participants or either U.S. group. Study 3 was designed to see if EA no load participants would make stronger dispositional attributions when the specific content of the situational information provided implied that the behavior was not caused by situational factors. Here, participants were given a dispositional inference goal and informed that the target was discussing comforting topics. Normative use of this situational information should have led participants to infer that the target's anxious behavior must be the result of a strong disposition. EA no load participants instead concluded that the woman was less dispositionally anxious than did EA load participants. Combined meta-analytically across studies, EA participants made corrections that weakened their dispositional attributions and strengthened their situational attributions regardless of the content and normative implication of the constraint information provided, $Z = 2.82$, $p < .005$.

*Situational Sensitivity or
Situational Causality Heuristic?*

We believe that these results reflect the use of a situational causality heuristic by EA individuals when they were not under cognitive load and could apply conscious attributional theories. Heuristic processes are low effort theories or decision rules that do not necessarily rely on logic or make the best use of available information. The use of a situational causality heuristic would imply that these situationally sensitive individuals sometimes ignore the specific content of situational information in favor of a general situationalist account of behavior. We believe this apparent conflict can be reconciled after considering the nature of EA sensitivity to situational information and its relation to the EA situationalist theory of behavior.

Numerous studies of attribution and behavioral prediction have found that EA individuals are more sensitive to situational information than U.S. individuals (Choi & Nisbett, 1998; Krull et al., 1999; Masuda & Kitayama, in press; Norenzayan et al., 2002). While not disputing the cultural difference in relative sensitivity to situational information, we believe that these data do not establish that EA individuals are sensitive to situational information in absolute terms. To the contrary, the data from each of these studies suggest that EA individuals are somewhat insensitive to situational information in absolute terms; they are just less insensitive than U.S. individuals. In each of these studies, EA participants only presented evidence of using the situational constraint information when it was made extremely salient, more salient than would typically be the case in daily life. In the absence of experimentally enhanced salience, EA individuals appear to be objectively insensitive to situational information as it pertains to attributions. In fact, one study (see Figure 2 from Norenzayan et al., 2002) found that whereas an EA sample was more sensitive to highly salient situational information than the U.S. sample, the EA sample was less sensitive to nonsalient situational information than the U.S. sample.

As described earlier, EA and U.S. individuals do differ in their general beliefs about the role of situations in causing behavior. EA individuals more strongly endorse the statement that “how people behave is mostly determined by the situation in which they find themselves” (Norenzayan et al., 2002, p. 119). In the absence of highly salient situational information, EA individuals might rely on their situationalist theory of behavior and assume situational causality—in essence, producing a situational causality heuristic and ignoring the available, albeit nonsalient, situational information. Our data suggest that this only occurred when EA participants were not under cognitive load (see Note 3).

Why have previous studies observed EA samples making seemingly better use of the normative rules of attribution than U.S. samples, when we have observed the opposite? In the previous studies of cross-cultural attribution, both a situational causality heuristic and actually attending to the situational information would have produced the same inferential result. In these studies, the specific content of the situational information always implied more situational causality and thus could not be differentiated from participants merely assuming situational causality. Either way, a weaker dispositional attribution would be made. In Study 3, we pitted these two potential processes against one another by providing situational constraint information that implied a stronger disposition rather than a weaker disposition.

Based on our results, we may speculate whether previous studies have actually shown greater sensitivity to situational information when the information is made salient. It is possible that the salience manipulation in those studies activated the situationalist theory of behavior for EA participants, leading them to more readily apply a situational causality heuristic, rather than leading them to attend more closely to the actual situational information. It remains for future studies to determine the effect of simultaneously varying the salience and the inferential implication of the situational information. We acknowledge that it is equally plausible that in high salience conditions, actual sensitivity to situational information would override a situational causality heuristic. Nevertheless, low salience conditions dominate daily life, supporting the real-world significance of our findings.

Limitations

There were a number of limitations of Studies 1 to 3 that could diminish the inferential power of these studies. Four of these limitations were addressed in Studies 4 and 5. First, in Studies 1 through 3, all participants made ratings of a U.S. target. Thus, participants not only varied with respect to culture but also with respect to the match between their culture and the target’s culture. It is not unreasonable to assume that participants would recruit different mental processes or have different levels of confidence when making ratings of a target that is from a more familiar culture. Nevertheless, in Study 4, EA participants made similar automatic and controlled attributions to both EA and U.S. targets, suggesting that this was not a significant factor in Studies 1 to 3.

Second, in Studies 1 to 3, we wanted to estimate the magnitude of the correspondence bias when participants were under cognitive load. We assessed this by comparing attributions made under cognitive load to the midpoint of the scale. Although the scale midpoint may not be an entirely appropriate comparison for attri-

butions in the no load condition, for participants under load, we think it makes sense. With fewer mental resources available, these cognitively loaded participants are not likely to first assess what they believe the typical person would do and then adjust for the target. We think it is plausible that participants under cognitive load would use the midpoint of the scale as a visual reference point for “typical” and then adjust from there for the target. In Study 4, we included a neutral target of each race to be judged so that this target could be used as a baseline for comparison. Consistent with our hypotheses, the neutral EA and U.S. targets were rated near the midpoint of the scales and the happy EA and U.S. targets were rated substantially higher when participants were under load. Thus, regardless of whether the scale midpoint or a neutral target was used as a reference point, EA participants produced a significant correspondence bias when they were under cognitive load, similar to U.S. participants in this and previous investigations.

Third, it could be argued that the first three studies demonstrate a controlled processing politeness bias rather than a situational causality heuristic. In this case, EA individuals would always try to attribute negative behavior to the situation rather than to the target’s dispositions, but would only be able perform this mental correction when they were not under cognitive load. In Study 4, we reversed the valence of the behavior such that targets appeared happy rather than anxious. We found that just as in the other studies, EA participants not under load corrected their attributions in the direction of more situational causality—a result inconsistent with a politeness bias account.

Fourth, we compared the attributions made under cognitive load and without load across cultures directly. This comparison assumes that the behavior identifications were the same in both cultures. That is to say, these comparisons assume that EA and U.S. participants were inferring the stable qualities of the target’s personality and situation based on behaviors with similar meanings across cultures. If EA participants judged the target’s anxious behavior to be much more anxious than did U.S. participants, then attributions might have varied by culture because of the different meanings associated with the behavior rather than as a result of any differences in the attribution process that followed from this initial identification. In Study 5, U.S. and EA participants were asked to judge how anxious the target’s behavior was rather than make attributional inferences about her dispositional anxiety. These judgments did not vary by culture, suggesting that U.S. and EA participants in Studies 1 to 3 were making attributions for similarly understood behaviors. Consequently, attributional differences that occurred were likely to be the result of attributional processes differing across culture.

Despite our best efforts, a fifth limitation was not effectively addressed. In none of the studies were the experimental materials translated into an EA language so they could be read in the native language by participants from both cultures. All participants run through the experiments indicated that they understood the instructions, materials, and ratings to be made, hopefully suggesting that the implications of this limitation may not have had a large bearing on our findings. Nevertheless, we cannot be absolutely certain that the EA participants all understood the material in the intended way. In addition, recent work by Ji, Zhang, and Nisbett (2004) demonstrates that some EA individuals who are bilingual in Chinese and English categorize differently depending on the language in use. This was found to be the case for those from Mainland China and Taiwan but not those from Hong Kong or Singapore. It should be noted that even after controlling for the effects of language, main effects of culture persisted. Still, this limitation of the current work needs to be addressed in future studies.

Conclusion

Our results suggest two major conclusions. First, given either a dispositional or situational inference goal, both U.S. and EA individuals produce automatic inferences consistent with the inferential goal. Second, whereas U.S. individuals use available controlled processing resources to apply the normative rules of attribution, albeit insufficiently, EA individuals use available controlled processing resources to apply a situationalist theory that overlooks the specific content of the situational information and instead promotes an inference of situational causality despite that content. Although this is technically an error, it may not lead to many mistakes outside the laboratory if naturally occurring situational information tends to suggest discounting more often than augmenting (Funder, 1987). Psychologists devise experiments to discover when a psychological mechanism breaks down and produces errors to understand how the mechanisms works; it is part of the process of reverse engineering. We think that this situationalist error might be better thought of as analogous to the errors of visual illusions. Visual illusions invariably highlight very adaptive processes that allow us to effectively navigate the perceptual world. It remains to be seen but the EA situational causality heuristic may reflect a highly adaptive process that allows EA individuals to effectively navigate the EA culture from which it emerges.

NOTES

1. Whether this experiment provides evidence of automatic correction or no correction at all depends on the value of the reference point against which attributions were compared. Knowles, Morris, Chiu, &

Hong (2001) had additional U.S. and East Asian (EA) samples estimate the attitude of the average person. These estimates differed significantly by culture. When each culture's attributions were compared to their culturally derived reference point, EA no load and load participant attributions were more similar to U.S. no load attributions than U.S. load attributions; EA participants under cognitive load appeared as if they had corrected their attributions similar to U.S. participants not under load. However, it is not clear that the reference points derived from the pilot samples are appropriate for participants under cognitive load. For them, a visual reference point (e.g., the middle of the scale) may be a more appropriate anchor from which automatic attributions are generated. In this case, U.S. and EA attributions would be compared directly, with EA no load and load participant attributions from this analysis being more similar to U.S. load attributions than U.S. no load attributions; EA participants under cognitive load would have appeared as if they had not corrected their attributions similar to U.S. participants under load. It is not clear from this single study, then, whether EA samples can correct their attributions while under load.

2. The third rating item regarding the pleasantness did not vary across condition. In hindsight, pleasantness does not seem to be the best antonym for anxiety. Including pleasantness in the composite does not change the pattern of means; however, the within-culture simple effects have slightly higher *p* values. Other effects reported retain the same level of significance.

3. Some might object to using the term "heuristic" for a phenomenon that occurs in the no load condition, when one could engage more algorithmic processing, compared with the load condition, when one could not. It should be noted that virtually all judgment and decision-making heuristics have been discovered and exclusively investigated in conditions analogous to our no load condition. Nevertheless, one could reasonably substitute the term "situationalist bias" for situational causality heuristic.

4. Because nearly half of the sample was Japanese, additional analyses were done for this group apart from the general EA analyses. This sample produced the same pattern of means as the general EA sample. Despite reduced statistical power, most tests that were significant in the general EA sample were significant in the Japanese sample as well.

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