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Consumers increasingly inform one another about marketplace offerings in online review forums. The authors demonstrate that when given no information about a reviewer (i.e., when the reviewer's identity is ambiguous), consumers use an accessibility-based egocentric anchor to infer that ambiguous reviewers have similar tastes to their own, leading consumers to be (1) similarly persuaded by reviews written by ambiguous and similar reviewers and (2) more persuaded by reviews written by ambiguous reviewers than by reviews written by dissimilar reviewers. The authors demonstrate that this effect holds in a single-offering, single-reviewer context. The authors also show that when consumers are exposed to multiple offerings with multiple reviewers, there may be a slight "cost" to ambiguity as opposed to similarity but that ambiguity remains much more persuasive than dissimilarity. Finally, the authors demonstrate that the effects of egocentric anchoring on persuasion can be moderated, first, by making other-related thoughts accessible and, second, by providing external cues about potential reviewer heterogeneity. These findings have important implications for both the management and monitoring of consumer-to-consumer online communication.

*Keywords:* agent recommendations, social influence, ambiguity, egocentric bias, anchoring and adjustment, persuasion

## Seeing Ourselves in Others: Reviewer Ambiguity, Egocentric Anchoring, and Persuasion

Consumers seeking guidance on purchases have typically obtained information from three sources: professional paid agents (Solomon 1986), nonpaid experts, and friends and family members who provide information through word-of-mouth communication (Gershoff and Johar 2006; Urbany,

Dickson, and Wilkie 1989). Many companies with an online presence now offer consumers a new source for information: reviews provided by other consumers with whom the target consumer has no prior relationship (Chevalier and Mayzlin 2006). In such forums, marketers may leave the determination of how much information a reviewer posts about him- or herself to the user posting the review. We refer to reviewers about whom no identifying information is provided (apart from the content of the review) as "ambiguous reviewers."<sup>1</sup> Although the informational content of such ambiguous reviewers' communications may have a clear valence, information about the reviewers themselves is unknown.

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<sup>1</sup>We use the term "ambiguous" rather than "anonymous" because it implies that, beyond simply not providing their name, the unidentified reviewer is a blank slate onto which readers of the review can project any personal characteristics they want.

Prior research has made fairly clear predictions about the persuasive effect of unambiguous reviewers: Similar others tend to be persuasive, while the opinions of dissimilar others are discounted (Brock 1965; Brown and Reingen 1987; Simons, Berkowitz, and Moyer 1970). Therefore, managers can predict the persuasive effects of positive and negative reviews on the basis of whether the reviewer is identified as similar or dissimilar to a target consumer. However, it is not clear how reviews written by ambiguous reviewers will affect consumers, if at all. Will ambiguously authored reviews simply be ignored because the reviewers are not fully identified? Will consumers discount ambiguous reviewers because of skepticism about the reason for the “missing” reviewer information? Or will such reviewers be relatively persuasive, because consumers have no concrete evidence that the reviewer is dissimilar to themselves? Depending on how these questions are answered, managers may make very different strategic decisions about the extent to which they promote reviewer ambiguity versus identification.

We find that ambiguous reviewers can wield substantial persuasive influence. Building on Gershoff, Broniarczyk, and West’s (2001) proposition that evaluating the source of a product recommendation is critical in determining its usefulness, we argue that consumers naturally make inferences about ambiguous reviewers. Furthermore, we propose that they automatically adopt the self as an anchor for doing so. This “egocentric anchor” promotes the implicit inference that an ambiguous reviewer has similar preferences to the consumer’s own. As a result, ambiguous reviewers generate preference similarity inferences and persuasive impact like that generated by similar reviewers and significantly greater than that generated by dissimilar reviewers. These egocentric anchoring–driven effects on persuasion can be attenuated in two ways: first, by making other-related thoughts accessible and, second, by providing external cues about potential reviewer heterogeneity. Importantly, this egocentric anchoring process leads to outcomes different from what might be predicted by alternative models from the missing-information literature (e.g., Dick, Chakravarti, and Biehal 1990). Our findings also suggest that while in some cases restriction of reviewer information can motivate choice, firms should beware of its potentially misleading consequences for consumers.

### THEORETICAL BACKGROUND

Dick, Chakravarti, and Biehal (1990) argue that the more relevant missing information is to the consumer, the more likely the consumer is to spontaneously engage in inferencing behavior to “fill in” the missing information. Given the importance of reviewer identity in determining the value of a given review (Gershoff, Broniarczyk, and West 2001), we argue that consumers will naturally make inferences about ambiguous reviewers. But how will this happen? To answer this question, we contrast the predictions of two research streams: work related to how consumers make inferences about missing information and work related to accessibility-based models of anchoring and adjustment.

#### *Ambiguous Reviewers as Missing Information*

One way to predict the effects of reviewer ambiguity on persuasion is to conceptualize an ambiguous reviewer’s identity as missing information. There are three strategies

from the missing-information literature that may be relevant in the ambiguous reviewer context. First, missing information may be filled in by means of a model in which consumers assign an averaged value to the missing attribute of a given stimulus based on the distributional properties of that attribute across other stimuli (Dick, Chakravarti, and Biehal 1990). In the current context, an ambiguous reviewer’s similarity would thus be inferred to be the average of any identified reviewers’ similarity. We will refer to this strategy as inferential averaging. Although this type of inferential averaging is a possible strategy in some contexts, it offers no predictions for single-reviewer, single-offering contexts in which no other reviewers are available to be averaged. In addition, note that an inferential averaging strategy is relatively effortful; a consumer would read multiple reviews, evaluate and encode the identity of multiple reviewers, and compute an average impression of the reviewers’ similarity to infer the similarity of an ambiguous reviewer. Although its complexity does not rule out this approach, it suggests that it may be less likely to occur naturally than cognitively simpler responses.

Two other strategies from the missing-information literature that may be used in the ambiguous reviewer context are (1) simply to treat missing information as negative (Garcia-Retamero and Rieskamp 2009), assuming that missing information has been withheld because it would lead to a negative product evaluation if provided, or (2) to ignore reviews with missing information (Kardes et al. 2008; Simons and Lynch 1991). In either case, an ambiguous reviewer would be unpersuasive. Although we seek evidence that consumers either use the inferential averaging strategy or treat ambiguous reviewers as negative or irrelevant, we propose that consumers use a different strategy when making inferences about ambiguous reviewers.

#### *Ambiguous Reviewers as a Cue for Anchored Inferences*

Rather than adopting one of the strategies suggested in the missing-information literature, we argue that consumers automatically “fill in blanks” about ambiguous reviewers by drawing from the most accessible source available: the self. Different from inferential averaging and other approaches from the missing information literature, this mechanism predicts that ambiguous reviewers (1) will be perceived as having similar preferences to the reader regardless of the identity of other surrounding reviewers and (2) will not be interpreted negatively (i.e., treated the same way one would treat a dissimilar reviewer) or ignored but may be as persuasive as identified similar reviewers.

Prior work supports the contention that, in cases of ambiguity, the self offers an easily accessed basis for inference making. Such use of the self is evidenced in the projection bias (Krueger and Clement 1997), the false consensus effect (Ross, Greene, and House 1977), and the egocentric bias, which describes people’s tendency to believe that their personal behaviors and beliefs are “common, normal, and shared by most other people” (Mullen 1983, p. 31). Relatedly, West (1996) demonstrates that agents tend to use their own preferences to make recommendations for people whose preferences are initially unknown, and Ames (2004) suggests that when trying to infer the mental states of similar others from ambiguous actions, people tend to project their own characteristics onto the actor. Epley et al. (2004)

argue that people automatically anchor in their own perspective when trying to make inferences about others' perspectives on a situation. This conceptualization of the self as a highly accessible construct used as an anchor is consistent with Mussweiler and Strack's (1999) description of anchoring and adjustment. In this conceptualization, anchors are initially adopted precisely because they are highly accessible. We propose that in the face of reviewer ambiguity, consumers draw on the self as an anchor, using it as the basis for self-consistent inferences. Inferences resulting from the automatic adoption of the anchor, though consciously accessible, are initially implicit in that they occur without instruction (Dick, Chakravarti, and Biehal 1990; Kardes et al. 2008). Consistent with prior research (e.g., Epley et al. 2004), we call the mechanism by which consumers anchor on the self (because of its chronic high accessibility) "egocentric anchoring."

Thus, a key point of our theory is that information about an ambiguous reviewer does not remain "missing" information. Rather, consumers naturally "fill in the blank" by making an inference about the reviewer's preferences because knowing this information is critically important to assessing the applicability of the review to the consumer (Gershoff, Broniarczyk, and West 2001). As a result of this egocentric anchoring process, we predict that consumers will automatically infer that an ambiguous reviewer has preferences similar to their own. But how do these inferences of similarity compare with those made for reviewers who are known to be similar to the consumer? We argue that although the mechanism driving presumed preference similarity differs for known similar as opposed to ambiguous reviewers (i.e., a similar reviewer is known to share the same characteristics as the consumer on the basis of provided information, while an ambiguous reviewer is inferred to have those same characteristics as a result of egocentric anchoring), the outcome is the same: As a result of the use of the egocentric anchor, ambiguous reviewers are assumed to share the consumer's preferences in the same way as a known similar reviewer. In contrast, reviewers identified as dissimilar are assumed to have less similar preferences to the self than either an identified similar reviewer or an ambiguous reviewer. Thus:

H<sub>1</sub>: Consumers infer that ambiguous reviewers have (1) equally similar preferences to their own as reviewers who are identified as similar to the self and (2) less similar preferences than reviewers identified as dissimilar to the self.

### *Reviewer Ambiguity and Persuasion*

Prior research indicates that a consumer is likely to be persuaded by a reviewer known to be similar to the self because a similar reviewer is likely to share the consumer's own preferences (Brock 1965; Simons, Berkowitz, and Moyer 1970). This research also implies that consumers will be less persuaded by a reviewer identified as dissimilar because the dissimilar reviewer will be assumed to have dissimilar preferences. But what happens when the egocentric anchor is relied on to infer similarity, as in the case of an ambiguous reviewer? We argue that because the ambiguous reviewer has been defined in the reader's mind as similar to the self, the reader will be equally persuaded by the ambiguous reviewer as by a similar reviewer. In contrast, we pre-

dict that consumers will be less persuaded by a review from a reviewer identified as dissimilar to the self than by a review written by an ambiguous reviewer. Thus, we believe that inferred similarity between an ambiguous reviewer and the consumer allows an ambiguous reviewer to be persuasive, even though it is possible that the consumer has little in common with the reviewer and, indeed, may have a very different preference structure:

H<sub>2a</sub>: Consumers are more persuaded by a review when the reviewer is either ambiguous or identified as similar to the self than when the reviewer is identified as dissimilar to the self.

H<sub>2b</sub>: The effects proposed in H<sub>2a</sub> are mediated by consumers' inferences about how similar the reviewer's preferences are to their own.

### *Adjusting the Egocentric Anchor*

According to Mussweiler and Strack (1999), anchoring and adjustment processes have two phases. In the first phase, anchors are adopted because of their accessibility. We have argued that because the self is chronically accessible, this leads people to automatically adopt it as a source for inferences about ambiguous reviewers. In the second phase, hypothesis testing can occur; to the extent that a hypothesis is explicitly disconfirmed, people may consciously adjust from the initial anchor. In our context, such adjustment would result in a decrease in the persuasiveness of the ambiguous reviewer. Given this two-stage process, we suggest that two interventions can moderate the effects of an ambiguous reviewer on persuasion: one nonconsciously at the time of anchor adoption and one during the more consciously controlled adjustment phase. If information about others is more accessible than the self when the consumer initially needs to make inferences about an ambiguous reviewer, we argue that the self will not be adopted as the anchor. Exposure to certain terms (i.e., priming) may increase the accessibility of related mental associations (e.g., Berger and Fitzsimons 2008). Thus, we propose that priming thoughts about others will disrupt the adoption of the self anchor because others are more accessible than the self, therefore reducing egocentric anchoring-driven inferences and attenuating the resultant effects on persuasion.

During the second, conscious hypothesis-testing phase, we propose that disconfirming evidence can challenge the hypothesis that the ambiguous reviewer is likely to be similar to the self, thus reducing egocentric anchoring-driven effects on persuasion. Note that in prior research exploring the relationship between the self and others' preferences, adjusting away from the use of the self as anchor has been driven by direct resolution of ambiguity. For example, in West's (1996) studies, participants received feedback about the recommendations they made for others over the course of 100 recommendation and feedback trials. Over time, participants learned the consumers' preferences and reduced their tendency to anchor on the self. An important contribution of our work over West's is that we demonstrate that (1) the effects of the egocentric anchor can be nonconsciously attenuated by preventing initial adoption of the anchor and (2) these effects can be moderated even when ambiguity about the identity of the reviewer (and hence his or her pref-

erences) is not externally resolved. During the adjustment phase, we propose that any evidence that challenges the initial hypothesis that the ambiguous reviewer is similar to the self can reduce the effect of the egocentric anchor. The hypothesis that others are similar to the self does not require direct experience of others' preferences but can simply be disconfirmed through marketing communications that suggest that the reviewer population is heterogeneous with respect to preferences. Thus:

H<sub>3</sub>: Consumers' likelihood of being persuaded by an ambiguously authored review is attenuated by increasing the accessibility of other-related thoughts.

H<sub>4</sub>: Consumers' likelihood of being persuaded by an ambiguously authored review is attenuated by explicitly signaling the inappropriateness of the self anchor.

### PILOT STUDY

Our predictions rely on the premise that the self is chronically more accessible than thoughts about others unless a person is exposed to information that makes other-related thoughts more accessible. Therefore, the self should be equally accessible after exposure to an ambiguous reviewer and a similar reviewer but less accessible after exposure to a dissimilar reviewer. Because measurement in the context of a study protocol would likely generate accessibility, we conducted a pilot study to test this basic proposition.

#### Participants, Stimuli, and Procedure

A total of 190 undergraduate students participated in this study for course credit. Participants read a restaurant review purportedly posted on [www.RestaurantReviews.com](http://www.RestaurantReviews.com) and were told that the review and accompanying reviewer information was a "screen test" for a computer-based study. The same review was purportedly provided by an ambiguous reviewer, a reviewer identified as similar to the participant, or a reviewer identified as dissimilar to the participant. We manipulated similarity using a methodology adapted from Gino, Shang, and Croson (2009). Participants first indicated their gender so that reviewer information either matched (similar condition) or did not match the participant's gender (dissimilar condition). In the similar and dissimilar reviewer conditions, participants saw the reviewer's gender and six additional units of demographic information about the reviewer that either indicated the reviewer was similar to most participants in the participant pool in which the study took place (i.e., the reviewer was a similar age, was a full-time student, was from the state in which the university was located, attended the same university, lived in the same city as participants, and so on) or was dissimilar to most participants (i.e., the reviewer was older, was employed full time, lived in a different region of the country, and so on), depending on condition (see Appendix A). The ambiguous reviewer condition showed only the review and its date. After exposure to the reviewer information as part of the screen test, participants were asked to respond, "as quickly as possible," to 20 questions about themselves. Participants indicated how well 20 terms (e.g., "intelligent," "hard-working," "attractive") described them on a nine-point scale anchored by "this is completely false [true] for me."

### Results and Discussion

We expected participants to respond more quickly (i.e., to have lower response latencies) in the ambiguous and similar reviewer conditions than in the dissimilar reviewer condition. Because reviewer information was a three-level variable (ambiguous vs. similar vs. dissimilar reviewer), we tested this prediction using the orthogonal contrast codes shown in Table 1 (Rosenthal, Rosnow, and Rubin 2000).<sup>2</sup> Analysis using these contrast codes as predictor variables revealed that participants in the ambiguous reviewer ( $M = 30.78$  seconds) and similar reviewer ( $M = 31.39$  seconds) conditions responded more quickly to the 20 self-referential questions than participants in the dissimilar reviewer condition ( $M = 58.32$  seconds;  $F(1, 187) = 3842.59, p < .0001$ ).<sup>3</sup> Furthermore, there was no significant difference in total time spent answering the questions between the ambiguous and similar reviewer conditions ( $F(1, 187) = 1.46, p = .23$ ). These results suggest that the self is equally accessible when participants read ambiguous and similar reviewer information and more accessible after reading this information than after reading dissimilar reviewer information. We use the same reviewer profiles in Study 1 to determine whether the high accessibility of the self in the ambiguous reviewer condition leads to self-consistent inference making.

### STUDY 1

Study 1 tests H<sub>1</sub> and H<sub>2</sub> using online reviews of a beach resort. We measure inferences about reviewers' similarity to the participant as well as participants' likelihood of visiting the reviewed resort. We also vary whether the review is positive or negative to ensure that our predictions hold across review valence.

#### Participants, Stimuli, and Procedure

A total of 257 undergraduate students participated in this study for course credit. Participants read a review of a hypothetical resort ostensibly written by another consumer for a website called [www.VacationReviews.com](http://www.VacationReviews.com) and were asked about their intention to visit the resort. Reviews were either positive (7 out of 10 stars) or negative (3 out of 10 stars)

<sup>2</sup>These contrast codes partition the multivariate analysis of variance sums of squares into interpretable subsets (Rosenthal, Rosnow, and Rubin 2000). Note that because the codes are orthogonal, there is no need for special alpha levels.

<sup>3</sup>Reviewer condition, treated as a three-level categorical variable, also had a significant overall effect on the speed with which participants were able to answer the 20 self-referential questions ( $F(2, 187) = 1923.40, p < .0001$ ).

Table 1  
ORTHOGONAL CONTRAST CODES

	Ambiguous Reviewer Condition	Similar Reviewer Condition	Dissimilar Reviewer Condition
Contrast code 1: Ambiguous and similar versus dissimilar reviewer	1	1	-2
Contrast code 2: Similar versus ambiguous reviewer	-1	1	0

(see Appendix A). We manipulated reviewer information using the reviewer profiles from the pilot study, such that participants saw the review accompanied by an ambiguous, a similar, or a dissimilar reviewer.

After reading the review and reviewer information, participants rated their likelihood of visiting the resort on a 1 (“not at all likely”) to 9 (“very likely”) scale. To determine whether inferred similarity to the self drove review persuasiveness, participants then rated how similar they believed the reviewer was to themselves in terms of their taste in vacation resorts (1 = “not at all similar,” and 9 = “very similar”). As a manipulation check, participants also rated the positivity of the review (1 = “not at all positive,” and 9 = “very positive”).

## Results

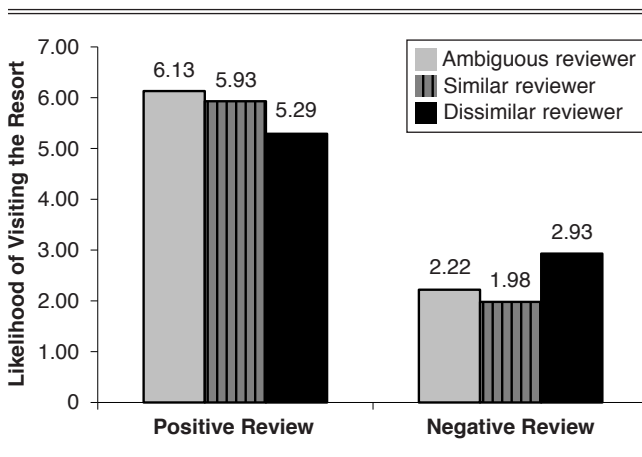
**Manipulation check.** We regressed the manipulation check variable on the two reviewer contrast codes from Table 1, the review valence factor, and the interactions between the review valence factor and the two contrast codes. As we expected, participants reported that the review was more positive in the positive condition ( $M = 6.51$ ) than in the negative review condition ( $M = 2.05$ ;  $F(1, 251) = 673.29$ ,  $p < .0001$ ), indicating that our manipulation of review valence was successful.<sup>4</sup> There were no other main or interactive effects.

**Ratings of reviewer preference similarity.** To test  $H_1$ , we used the same predictor variables as in the manipulation check to predict ratings of the similarity of the reviewer’s tastes in vacation resorts.<sup>5</sup> This analysis revealed that participants in the ambiguous ( $M = 4.89$ ) and similar ( $M = 5.21$ ) reviewer conditions inferred that the reviewers’ tastes were more similar to their own than participants in the dissimilar reviewer condition ( $M = 3.98$ ;  $F(1, 251) = 16.63$ ,  $p < .0001$ ).

<sup>4</sup>In a separate analysis, we regressed the manipulation check item on reviewer information condition treated as a three-level categorical variable crossed with the review valence factor. Again, only the review valence factor was significant ( $F(1, 251) = 673.29$ ,  $p < .0001$ ).

<sup>5</sup>When we treated the reviewer information condition as a three-level categorical variable and crossed it with review valence to predict ratings of the similarity of the reviewer’s tastes in vacation resorts, only the reviewer factor was significant ( $F(2, 251) = 8.72$ ,  $p < .0001$ ).

Figure 1  
STUDY 1: PERSUASIVENESS OF RESORT REVIEW BY REVIEWER INFORMATION CONDITION AND REVIEW VALENCE



.0001). Furthermore, there was no significant difference in inferences of taste similarity between the ambiguous and similar reviewer conditions ( $F(1, 251) = 1.14$ ,  $p = .29$ ).

**Persuasion.** Using the same model to predict participants’ likelihood of visiting the reviewed resort, we found that, unsurprisingly, participants were more likely to visit the resort that was given a positive review ( $M_{\text{positive}} = 5.82$ ,  $M_{\text{negative}} = 2.38$ ;  $F(1, 251) = 358.22$ ,  $p < .0001$ ).<sup>6</sup> More important, an interaction between the dissimilar versus similar and ambiguous reviewer contrast code and the review valence factor also emerged ( $F(1, 251) = 16.50$ ,  $p < .0001$ ) (see Figure 1). As we predicted in  $H_{2a}$ , participants in the positive review condition indicated that they would be more likely to visit the resort when the review was written by a similar ( $M = 5.93$ ) or an ambiguous ( $M = 6.13$ ) reviewer than when it was written by a dissimilar reviewer ( $M = 5.29$ ;  $F(1, 117) = 5.43$ ,  $p < .05$ ). In the negative review condition, participants were less likely to visit the resort when the review was written by a similar ( $M = 1.98$ ) or an ambiguous ( $M = 2.22$ ) reviewer than when it was written by a dissimilar reviewer ( $M = 2.93$ ;  $F(1, 134) = 12.79$ ,  $p < .001$ ), again showing equivalent levels of persuasion by the ambiguous reviewer and the similar reviewer. In further support of  $H_{2a}$ , there was no difference in likelihood of visiting the resort in the similar and ambiguous reviewer conditions in either the positive ( $F(1, 117) = .36$ ,  $p = .55$ ) or the negative ( $F(1, 134) = .83$ ,  $p = .37$ ) review condition.

**Mediation.** To test  $H_{2b}$ , we assessed whether participants’ inferences about the reviewer’s taste similarity mediated the persuasion results. The dissimilar versus ambiguous and similar reviewer contrast code (code 1, Table 1) predicts perceived similarity of the reviewer’s taste in vacation resorts in both the positive ( $F(1, 117) = 7.76$ ,  $p < .01$ ) and the negative ( $F(1, 134) = 8.95$ ,  $p < .01$ ) review conditions. Similarity in resort taste also predicts likelihood of visiting the resort in both the positive ( $F(1, 118) = 30.84$ ,  $p < .0001$ ) and the negative ( $F(1, 135) = 17.41$ ,  $p < .0001$ ) review conditions. In the positive review condition, when we include contrast code 1 and the similarity in resort taste measure in the model, only the similarity in resort taste measure is a significant predictor of likelihood of visiting the resort ( $F(1, 116) = 26.52$ ,  $p < .0001$ ); contrast code 1 drops to nonsignificance ( $F(1, 116) = 1.45$ ,  $p = .23$ ), indicating full mediation (Baron and Kenny 1986; Sobel 1982 test:  $z = 2.45$ ,  $p < .05$ ). In the negative review condition, contrast code 1 drops in significance when the mediator is included in the model ( $F(1, 133) = 7.53$ ,  $p < .01$ ) compared with the effect of contrast code 1 when resort taste is not included, and similarity in resort taste is a significant predictor of visiting the resort ( $F(1, 133) = 11.63$ ,  $p < .001$ ), indicating partial mediation with a significant Sobel test (Baron and Kenny 1986; Sobel 1982 test:  $z = 2.25$ ,  $p < .05$ ).

## Discussion

Consistent with prior work, Study 1 shows that people infer that similar others share their preferences while dis-

<sup>6</sup>When we treat reviewer information condition as a three-level categorical variable and cross it with review valence to predict likelihood of visiting the resort, there is a positive effect of valence ( $F(1, 251) = 358.22$ ,  $p < .0001$ ) and an interactive effect of valence and reviewer condition ( $F(2, 251) = 8.25$ ,  $p < .001$ ).

similar others do not, which influences the reviewers' persuasive impact. More important, we provide evidence that an ambiguous reviewer can yield equivalent levels of inferred preference similarity and persuasion to a similar reviewer and significantly greater levels than that for a dissimilar reviewer. We also show that these effects are not restricted to positive reviews. This pattern of results is not consistent with theories predicting that missing information will lead an ambiguously authored review to be ignored or discounted.

Although Study 1 provides support for our hypotheses, it does so in a single-reviewer, single-offering context. This simple paradigm achieves high internal validity by focusing participants' attention on the reviewer information provided and only a single offering, but it does not offer high external validity, given that consumers may encounter products on online retailers' websites (e.g., [www.Amazon.com](http://www.Amazon.com)) that have been critiqued by many reviewers. In addition, because only one reviewer was present in Study 1, participants could not use an inferential averaging strategy to make inferences about the ambiguous reviewer (Dick, Chakravarti, and Biehal 1990). We designed Study 2 to explore whether consumers use an inferential averaging strategy in a more ecologically valid multireviewer, multi-product context in which other reviewers are present to be averaged and consumers choose between two offerings.

### STUDY 2

Study 2 explores participants' likelihood of visiting different restaurants that have been reviewed by multiple reviewers who vary in terms of identification and similarity. This study seeks evidence that consumers might not use the egocentric anchoring process we propose but instead average across identified reviewers to infer an ambiguous reviewer's preferences. Therefore, we employ a within-subject design in which each participant sees three reviews for two restaurants, "Restaurant ABC" and "Restaurant XYZ." We created six reviews, holding constant various aspects of the review itself, such that differences in restaurant preference would be driven solely by differences in reviewer information. Note that this design not only provides more ecological validity and direct within-subject tests of our hypotheses but also provides additional insights into the impact of ambiguity across the entire sample.

#### Pretest

To ensure that the restaurant reviews (see Appendix B) were equally positively valenced<sup>7</sup> and that they did not differ on other characteristics, we asked 115 participants to rate, on a 1 ("not at all") to 9 ("very") scale, how "positive," "detailed," "informative," "believable," "useful," "credible," and "thoughtful" each of the restaurant reviews was. We randomized order of presentation between subjects. Responses to these measures were highly correlated for each restaurant (all  $\alpha$ s were between .89 and .93), so we averaged them to create an index measure ( $M_{\text{Review \# 1, Restaurant ABC}} = 5.71$ ,  $M_{\text{Review \# 2, Restaurant ABC}} = 5.77$ ,  $M_{\text{Review \# 3, Restaurant ABC}} = 5.74$ ,  $M_{\text{Review \# 1, Restaurant XYZ}} = 5.65$ ,

$M_{\text{Review \# 2, Restaurant XYZ}} = 5.79$ ,  $M_{\text{Review \# 3, Restaurant XYZ}} = 5.59$ ). A repeated measures analysis revealed no within-subject effect of restaurant ( $F(5, 570) = .80$ ,  $p = .55$ ), indicating that participants rated the reviews equally in terms of overall quality and valence.

#### Participants and Procedure

A total of 314 undergraduate students participated in this study in exchange for course credit. Participants were given a packet that contained three reviews for Restaurant ABC and three reviews for Restaurant XYZ, purportedly posted on [www.RestaurantReviews.com](http://www.RestaurantReviews.com). After participants saw the restaurant reviews and reviewer information, they were asked to indicate "how likely are you to try dining" at both restaurants on two separate 1 ("not at all likely") to 9 ("very likely") scales. Participants were also asked, "If you had to choose where to go to dinner tonight, which of the restaurants would you choose?" They were given three options: Restaurant ABC, Restaurant XYZ, and "Neither one: I would choose to go to dinner somewhere else." Finally, participants indicated how similar they thought each of the six reviewers' tastes in restaurants was to their own using a 1 ("not at all similar") to 9 ("very similar") scale.

#### Stimuli and Predictions

As Table 2 shows, we assigned the reviewers for each restaurant such that Restaurant ABC always had three reviews written by identified reviewers (three similar reviewers in conditions 1–3, three dissimilar reviewers in conditions 4–6, two similar and one dissimilar reviewer in conditions 7–9, and two dissimilar and one similar reviewer in conditions 10–12). In contrast, Restaurant XYZ always had one ambiguous reviewer seen in conjunction with a similar and dissimilar reviewer (conditions 1, 4, 7, and 10), two similar reviewers (conditions 2, 5, 8, and 11), or two dissimilar reviewers (conditions 3, 6, 9, and 12). We predict that due to egocentric anchoring, ambiguous reviewers will create perceived similarity and persuasive effects like those for similar reviewers, regardless of the identities of other reviewers in the set. For example, we predict that participants will respond in the same way to a reviewer set of three similar reviewers (SSS) as to a reviewer set of two similar and one ambiguous reviewer (SAS). (For additional detail about the stimuli, see Web Appendix A <http://www.marketingpower.com/jmrjune11>.)

#### Results

To test our predictions across all conditions, we first perform an omnibus test of our persuasion hypothesis that incorporates both the within-subject and the between-subject elements of the study design. We then conduct a series of within-subject analyses to test our hypotheses in each condition; here, we also look for evidence of inferential averaging within a given participant's responses and show that perceived similarity mediates persuasion. Finally, we collapse the data across all conditions to gain a more nuanced picture of the effect of ambiguity in the aggregate.

*Omnibus test.* Because we have three predictions across the 12 conditions, we can use effects coding to create three prediction groups (Gupta 2008): Group A (conditions 1, 3, and 9) should show a relative preference for Restaurant ABC, group B (conditions 4, 5, 6, 8, 10, and 11) should

<sup>7</sup>All reviews used in this and subsequent studies were designed to be moderately positive, given Chevalier and Mayzlin's (2006) finding that most user-generated reviews are positive.

Table 2  
STUDY 2: STIMULI AND RESTAURANT RELATIVE PREFERENCE AND CHOICE RESULTS

Condition	Restaurant ABC			Restaurant XYZ			Average Likelihood of Trying Restaurant ABC	Average Likelihood of Trying Restaurant XYZ	Relative Preference for Restaurant ABC	Proportion Choosing Restaurant ABC (%)
	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 1	Reviewer 2	Reviewer 3				
1	S1	S2	S3	S4	A	D4	6.96	4.54	2.42***	83.33**
2	S1	S2	S3	S4	A	S5	6.88	7.00	-.12	50.00
3	S1	S2	S3	D4	A	D5	7.08	4.00	3.08***	88.24***
4	D1	D2	D3	S4	A	D4	3.17	5.17	-2.00***	11.76***
5	D1	D2	D3	S4	A	S5	3.08	6.13	-3.05***	15.00***
6	D1	D2	D3	D4	A	D5	3.07	4.17	-1.10***	15.00***
7	S1	S2	D1	S4	A	D4	5.54	5.25	.29	52.94
8	S1	S2	D1	S4	A	S5	5.48	6.31	-.83***	26.09**
9	S1	S2	D1	D4	A	D5	5.59	3.90	1.69***	72.73**
10	D1	D2	S1	S4	A	D4	3.77	5.35	-1.58***	30.43*
11	D1	D2	S1	S4	A	S5	4.30	6.52	-2.22***	21.05**
12	D1	D2	S1	D4	A	D5	4.41	4.38	.03	47.62

\* $p < .10$ .

\*\* $p < .05$ .

\*\*\* $p < .01$ .

Notes: S= similar reviewer, A = ambiguous reviewer, and D = dissimilar reviewer.

show a relative preference for Restaurant XYZ, and group C (conditions 2, 7, and 12) should show indifference. To test our predictions across all conditions, we therefore use the two effects codes shown in Web Appendix A (see <http://www.marketingpower.com/jmrjune11>), which capture the three prediction groups, to predict the relative preference for Restaurant ABC (calculated as the difference score of the likelihood of trying Restaurant ABC minus Restaurant XYZ). Fitting linear regression with this coding yields the following:

$$Y = .23 + 2.12 (E1) - 1.96 (E2)$$

The regression coefficient of E1 (Effect 1) is +2.12 and represents the deviation of the mean of prediction group A from the unweighted overall mean. Thus, the mean difference score for prediction group A is 2.35 (= .23 + 2.12), which is positive and significantly different from zero ( $t(76) = 13.13, p < .0001$ ), indicating a significant preference for Restaurant ABC. Similarly, the coefficient of E2 (Effect 2; -1.96) indicates that the mean difference score for prediction group B is negative [-1.73 (= .23 - 1.96)] and significantly different from zero ( $t(159) = 10.95, p < .0001$ ), which shows a preference for Restaurant XYZ, as predicted. The deviation from the overall mean of prediction group C is .07 [= .23 + 2.12(-1) + 1.96(-1)], which is not statistically significant from zero ( $t(76) = .36, p = .72$ ), in support of the prediction that consumers will be indifferent between the restaurants in these conditions.

*Within-subject analysis.* Consistent with the omnibus test, the results of separate logits contrasting the choice of Restaurant ABC and XYZ in each condition (1) show that participants were more likely to choose either of the two restaurants than the “neither” option (for details, see Web Appendix A, Table WA2, at <http://www.marketingpower.com/jmrjune11>) and (2) support our predictions about choice between the two restaurants, with the exception of condition 10, in which the difference is marginal ( $p = .07$ ) but in the predicted direction (see Table 2).

We next performed a repeated measures analysis to test, by condition, whether there was a significant within-subject effect of restaurant on how likely participants were to try both restaurants (i.e., whether the likelihood ratings differed for Restaurant ABC vs. Restaurant XYZ). These tests enable us to compare similar versus ambiguous reviewers in combination (e.g., in condition 2, we compare the persuasion created by reviewer set SSS vs. reviewer set SAS). As we show in Table 2, and consistent with the omnibus test, the results support  $H_{2a}$  in all conditions (for more details on both the within-subject choice and trial likelihood analyses, see Web Appendix A at <http://www.marketingpower.com/jmrjune11>).

We next examine the similarity ratings for each reviewer set in which an ambiguous reviewer was present. As expected, we found that similar and ambiguous reviewers were rated as equally similar to each other when they occurred together in a review set and more similar than a dissimilar reviewer whenever a dissimilar reviewer appeared in the review set. Thus, as Table 3 shows, similarity ratings support our predictions in all conditions except condition 11, in which we note a significant overall within-subject effect ( $F(2, 44) = 12.18, p < .001$ ); follow-up analyses indicated that although the ambiguous reviewer (reviewer 2) and one of the similar reviewers were rated as equally similar (reviewer 3;  $F(1, 22) = 1.15, p = .30$ ), the similar reviewer identified as reviewer 1 was rated as more similar to the self than was the ambiguous reviewer ( $F(1, 22) = 14.29, p < .01$ ).

As in Study 1, we expected perceptions of reviewer taste similarity to mediate likelihood of trying the reviewed restaurant ( $H_{2b}$ ). Therefore, we conducted a within-subject mediation analysis to determine whether the average reviewer taste similarity ratings for both restaurants (see Table 4) mediated the differences in likelihood of trying the restaurants observed in conditions 1, 3, 4, 5, 6, 8, 9, 10, and 11 (i.e., the conditions in which we predicted and found a significant difference between participants' trial likelihood). Following Judd, Kenny, and McClelland's (2001) procedure

Table 3  
STUDY 2 RESULTS: PERCEIVED REVIEWER SIMILARITY WHEN AN AMBIGUOUS REVIEWER IS IN THE REVIEW SET

Condition	Restaurant XYZ Reviewer 1		Restaurant XYZ Reviewer 2		Restaurant XYZ Reviewer 3	
	Reviewer Type	Average Rated Reviewer Similarity	Reviewer Type	Average Rated Reviewer Similarity	Reviewer Type	Average Rated Reviewer Similarity
1	S	6.96	A	7.13	D	2.96
2	S	7.29	A	7.17	S	7.17
3	D	2.96	A	7.08	D	2.75
4	S	7.25	A	7.21	D	3.00
5	S	7.38	A	7.25	S	7.13
6	D	2.59	A	7.34	D	2.93
7	S	6.96	A	7.17	D	2.92
8	S	7.00	A	7.31	S	7.07
9	D	3.03	A	7.24	D	2.90
10	S	7.42	A	7.39	D	2.81
11	S	8.13	A	7.04	S	7.22
12	D	2.14	A	7.10	D	2.86

Notes: In all four conditions in which participants rated an ambiguous, similar, and dissimilar reviewer (1, 4, 7, and 10), the similar and ambiguous reviewers were rated as more similar to the self than the dissimilar reviewer (all  $ps < .0001$ ), and the ambiguous and similar reviewer were rated as equally similar to the self (all  $ps > .13$ ). A repeated measures analysis showed that in conditions 2, 5, and 8, there were no significant differences between the similar and the ambiguous reviewers (all  $ps > .06$ ). In conditions 3, 6, 9, and 12, in which participants saw two dissimilar and one ambiguous reviewer, the ambiguous reviewer was rated as significantly more similar to the self than the dissimilar reviewer in all four conditions (all  $ps < .0001$ ), and the two dissimilar reviewers were rated as equally dissimilar in each of these conditions (all  $ps > .08$ ).



**Table 4**  
STUDY 2 RESULTS: AVERAGE PERCEIVED SIMILARITY  
IN REVIEWERS' TASTES IN RESTAURANTS FOR EACH  
REVIEW SET

Condition	Average Reviewer Similarity Across Review Set	
	Restaurant ABC	Restaurant XYZ
1	6.58	5.68
2	6.74	7.21
3	6.74	4.26
4	3.13	5.82
5	2.90	7.25
6	2.97	4.29
7	5.04	5.68
8	4.96	7.13
9	5.02	4.39
10	4.31	5.87
11	4.58	7.46
12	4.64	4.03

for testing mediation in within-subject designs, we created a “difference in perceived taste similarity” variable by subtracting the average perceived similarity of the reviewers for Restaurant XYZ from that of the average perceived similarity of the reviewers for Restaurant ABC. We also created a “difference in likelihood” variable using participants’ likelihood of trying both restaurants. Finally, we created a “summation of perceived taste similarity” variable by adding the average perceived similarity of the reviewers for Restaurant XYZ to that of the reviewers for Restaurant ABC. We use this last variable to test whether perceived similarity had a moderating, rather than a mediating, effect on trial likelihood (Judd, Kenny, and McClelland 2001). Then, we estimated a regression model predicting difference in likelihood by the difference in perceived taste similarity and summation of perceived taste similarity variables. None of the intercept tests, which test for the difference between trial likelihoods across the two restaurants, are significant (all  $ps > .06$ ). Furthermore, across all conditions examined, only the difference in perceived taste similarity is a significant predictor of difference in likelihood (all  $ps < .01$ ), while the summation of perceived taste similarity is not a significant predictor (all  $ps > .06$ ). These results indicate that the difference in likelihood of trying the two restaurants is fully mediated (but not moderated) by perceived reviewer taste similarity (Judd, Kenny, and McClelland 2001).

*Does ambiguity have any cost?* Although the analyses up to this point provide directional confirmation of our overall theory, the design of this study also enables us to calculate the relative persuasive impact of a similar, dissimilar, and ambiguous reviewer in the aggregate. To do so, we regressed the relative preference for Restaurant ABC on the relative gain or loss in similar, ambiguous, or dissimilar reviewers from Restaurant ABC to Restaurant XYZ (e.g., the difference between the number of similar reviewers for Restaurant ABC minus the number of similar reviewers for Restaurant XYZ; for details, see Web Appendix A at <http://www.marketingpower.com/jmrjune11>). This analysis yields the following coefficients for each reviewer type: similar:  $b = 1.29$  ( $SE = .07$ ), ambiguous:  $b = .95$  ( $SE = .11$ ), dissimilar:  $b = -.34$  ( $SE = .12$ ). Consistent with prior findings, these coefficients demonstrate that both ambiguous and similar

reviewers have a positive effect on the likelihood of trying Restaurant ABC, while dissimilar reviewers have a negative effect on trial likelihood. However, these findings also demonstrate that the effect of ambiguous reviewers in the aggregate is significantly weaker than the effect of similar reviewers ( $t = 3.29$ ,  $p < .001$ ), suggesting that, although still more persuasive than dissimilarity, ambiguity may have a slight persuasive cost relative to similarity.

### Discussion

Study 2 demonstrates that the persuasive impact of ambiguous reviewers is roughly equivalent to that of similar reviewers regardless of surrounding information. The results of the omnibus and within-subject analysis support our theory that consumers anchor on the self when faced with an ambiguous reviewer and that inferred similarity, in turn, predicts persuasion, as in Study 1. When the data are considered in the aggregate, we gain a more nuanced view of the effect of reviewer ambiguity, similarity, and dissimilarity than is evident in the single-product, single-reviewer context of Study 1. In Study 2’s multiproduct, multireviewer context, we observe that ambiguity is interpreted more like similarity than it is like dissimilarity, as expected, but that a similar reviewer appears to be somewhat more persuasive than an ambiguous reviewer. Thus, compared with known similar reviewers, there appears to be a small cost to reviewer ambiguity when consumers are asked to choose between multiple offerings.

In addition, Study 2 clarifies how consumers integrate multiple reviewers’ viewpoints. According to Soll and Larick (2009), when integrating their own and others’ opinions, people sometimes choose between the two opinions and sometimes average the two, showing a tendency to rely on their own opinion in many cases. Our research echoes the dominant role of the self in combining information: The self provides a means to automatically resolve reviewer ambiguity. Second, our findings show a role for averaging: When ambiguity is resolved, the set of reviewers for a given offering is averaged to yield a composite level of similarity, and thus persuasiveness, for the review set as a whole.

Furthermore, although we observe averaging of reviewer similarity across reviewers as a general method of determining the overall persuasiveness of multiple reviewers, we do not observe inferential averaging. To illustrate, consider the trial likelihood findings from conditions 6, 10, and 12. The findings in these conditions are consistent with our egocentric anchoring mechanism but inconsistent with an inferential averaging strategy. If an inferential averaging strategy were used (i.e., if consumers inferred the similarity of the ambiguous reviewer by averaging the similarity of the five identified reviewers), in condition 6 the ambiguous reviewer would have been inferred to be dissimilar, and participants should therefore have been indifferent between the restaurants. Instead, we find that participants preferred Restaurant XYZ, consistent with our argument that they first used the self anchor to infer that the ambiguous reviewer was similar to themselves and then averaged across the three reviewers for each restaurant to determine the overall persuasiveness of the set of reviews. Similar arguments hold in condition 10, in which inferential averaging would have led to indifference, and condition 12, in which inferential averaging would have led to a preference

for Restaurant ABC. In both conditions, we find results consistent with use of an egocentric anchor but not with inferential averaging.

Thus far, we have shown that egocentric anchoring effects hold when consumers are exposed to one review of a single offering regardless of valence (Study 1) and to multiple reviews for two offerings (Study 2) in which reviewers vary in terms of identification and similarity. An additional study (reported in Web Appendix B; <http://www.marketingpower.com/jmrjune11>) also shows that these results replicate when consumers are exposed to a single review for multiple offerings. We next turn to an exploration of how egocentric anchoring effects on persuasion can be moderated.

### STUDY 3

Because we believe that the self anchor is adopted because of its general accessibility, making an alternative source of information highly accessible should attenuate its adoption. Thus, activating other-related thoughts should decrease perceptions that the ambiguous reviewer is similar to oneself and decrease the ambiguous reviewer's persuasiveness. Our pilot study suggested that ambiguity allows the self to remain as highly accessible as after exposure to a similar other. Study 3 examines this process further by manipulating the accessibility of self-related thoughts in a separate priming task. In addition, rather than forcing participants to report perceived similarity to the reviewer, here we capture participants' similarity-related thoughts in an open-ended response. This more subtle measure provides further evidence that thoughts about similarity to the self are automatically used to make inferences about the reviewer.

#### Participants, Stimuli, and Procedure

A total of 204 undergraduate students participated in this study for course credit. Study 3 employed a 2 (prime: self vs. others)  $\times$  3 (reviewer information: ambiguous vs. similar vs. dissimilar) full factorial design. Participants first completed a timed three-minute writing task for a "Descriptive Paragraph Survey." In the self prime condition, participants were asked to write "an e-mail to introduce yourself to someone" and were told to "describe yourself as you would to someone you had not yet met." In the others prime condition, participants were asked to "describe the ways in which the people in this room are different from you and from one another" and were told to "describe them as you would to someone who has never seen them." Next, participants read a restaurant review (with accompanying reviewer description) purportedly posted on [www.RestaurantReviews.com](http://www.RestaurantReviews.com) (see Appendix B; the review used was Review 1 for Restaurant ABC in Study 2). Participants then indicated their likelihood of trying the restaurant. Finally, to gather direct evidence of enhanced accessibility of either self- or other-related thoughts, we also asked participants to list up to four thoughts about the reviewer.

#### Results

*Coding of thought listings.* Two independent raters, both blind to our hypotheses, coded the thought listings. The raters counted all thoughts about similarity or dissimilarity between the participant and the reviewer, whether an overall assessment of similarity/dissimilarity ("They were just like me" vs. "[they were] pretty different from me"), noting

similarities or dissimilarities on specific demographic variables (e.g., "a student [like me]" vs. "he's not from around here"), or an inference about preference similarity or dissimilarity (e.g., "I think they probably look for the same thing[s] I do" vs. "They probably have different tastes"). The raters had a high degree of agreement for this task (for ratings of similarity, Cohen's kappa = .87; for ratings of dissimilarity, Cohen's kappa = .74), and disagreements were resolved by a third independent rater.

*Moderation by accessibility: self versus others prime.* H<sub>3</sub> predicted that making other-focused (vs. self-focused) thoughts accessible would decrease the likelihood of adopting the self as an anchor, thus attenuating egocentric anchoring-driven effects on persuasion. To test H<sub>3</sub>, we regressed likelihood of trying the restaurant on the two reviewer contrast codes from Table 1, the priming factor, and the interactions between the priming factor and the two contrast codes. A marginally significant interaction between the similar versus ambiguous reviewer contrast code and the priming factor ( $F(1, 198) = 3.57, p = .06$ ) emerges (for details, see Figure 2).<sup>8</sup> Although this interaction is not significant at the  $p < .05$  level, focal follow-up analyses test H<sub>3</sub>, exploring whether the differences in the persuasiveness of the ambiguous reviewer across the two prime conditions are as predicted.

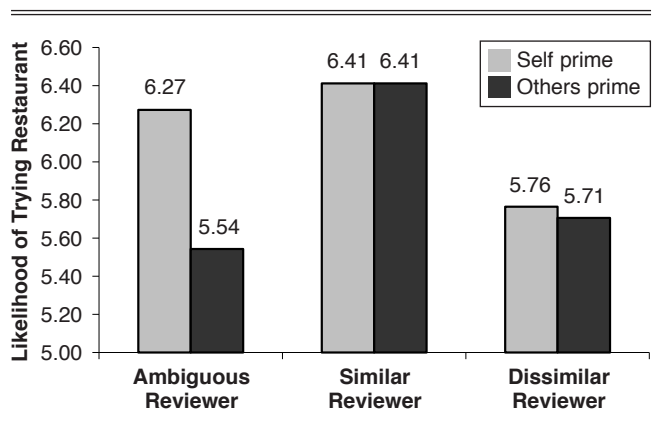
We first analyze results from the self prime condition, which we expect to substantively replicate the positive review condition from Study 1. Participants in the ambiguous reviewer condition who were primed with self-related thoughts were equally likely to try the restaurant as were participations in the self prime, similar reviewer condition ( $M_{\text{ambiguous, self prime}} = 6.27, M_{\text{similar, self prime}} = 6.41; F(1, 98) = .27, p = .61$ ). Furthermore, participants were less likely to try the restaurant in the dissimilar reviewer condition ( $M_{\text{dissimilar, self prime}} = 5.76$ ) than in the similar and ambiguous reviewer conditions ( $F(1, 98) = 6.20, p < .05$ ).

Analysis of thought listings in the self prime condition provided additional support for our hypotheses. Egocentric

<sup>8</sup>When we treated reviewer information as a three-level categorical variable and crossed with prime condition to predict likelihood of trying the restaurant, only the reviewer factor was significant ( $F(2, 198) = 6.63, p < .01$ ).

Figure 2

STUDY 3: PERSUASIVENESS OF RESTAURANT REVIEW BY REVIEWER INFORMATION CONDITION AND SELF VERSUS OTHERS PRIME CONDITION



anchoring would be evidenced by a tendency to focus on similarities between the participant and the reviewer in both the similar and the ambiguous reviewer conditions but not in the dissimilar condition. To capture the relative focus on similarities, we subtracted the total number of thoughts about dissimilarity to the reviewer from the total number of thoughts about similarity for each participant. As Figure 3 shows, participants in the similar and ambiguous reviewer conditions ( $M_{\text{similar}} = .29$ ,  $M_{\text{ambiguous}} = .15$ ) had relatively more thoughts about similarity (vs. dissimilarity) to the reviewer. These difference scores were not statistically different ( $F(1, 98) = 1.32$ ,  $p = .25$ ). In the dissimilar reviewer condition, participants had more thoughts about dissimilarity to the reviewer than about similarity ( $M_{\text{difference score in dissimilar condition}} = -.38$ ), resulting in a difference score that was significantly different from the similar and ambiguous reviewer conditions ( $F(1, 98) = 31.95$ ,  $p < .0001$ ). Follow-up analyses indicated that the mean number of thoughts about similarity in the similar ( $M = .29$ ) and ambiguous ( $M = .18$ ) reviewer conditions is greater than zero ( $F(1, 33) = 10.71$ ,  $p < .01$ ;  $F(1, 32) = 7.11$ ,  $p < .05$ , respectively). In contrast, in the dissimilar reviewer condition, there were zero thoughts about similarity. The mean number of thoughts about dissimilarity in the dissimilar reviewer condition, however, was greater than zero ( $M = .38$ ;  $F(1, 33) = 16.35$ ,  $p < .001$ ), whereas the mean number of thoughts about dissimilarity in the ambiguous ( $M = .03$ ) and similar ( $M = 0.00$ ) reviewer conditions were not significantly different from zero (both  $ps > .32$ ).

In contrast, when other-related thoughts were heightened in accessibility, there is no evidence that the self was used to make inferences. In the others prime condition, participants were significantly less likely to try the restaurant in the ambiguous reviewer condition ( $M_{\text{ambiguous, others prime}} = 5.54$ ) than in the similar reviewer condition ( $M_{\text{similar, others prime}} = 6.41$ ;  $F(1, 100) = 9.87$ ,  $p < .01$ ). Indeed, alternative contrast codes comparing (1) the similar reviewer condition with the ambiguous and dissimilar reviewer ( $M_{\text{dissimilar}} = 5.71$ ) con-

ditions and (2) the ambiguous with the dissimilar reviewer condition revealed that the likelihood of trying the restaurant is greater in the similar reviewer condition than in the ambiguous and dissimilar conditions ( $F(1, 100) = 10.70$ ,  $p < .05$ ) and equivalent in the ambiguous and dissimilar reviewer conditions ( $F(1, 100) = .35$ ,  $p = .56$ ). These results support  $H_3$ , suggesting that when an alternative set of concepts is made accessible, people may not anchor on the self and, therefore, do not show egocentric anchoring-based effects. To test  $H_{2b}$ , we tested whether the interaction between the similar versus ambiguous reviewer contrast code (code 2 in Table 1) and the priming factor was mediated by the thought-listing difference score (Baron and Kenny 1986). The interaction between contrast code 2 and the priming factor predicts the thought-listing difference score ( $F(1, 198) = 3.67$ ,  $p = .06$ ), and the thought-listing difference score predicts likelihood of trying the restaurant ( $F(1, 202) = 55.57$ ,  $p < .0001$ ). The interaction between contrast code 2 and the priming factor predicts the likelihood of trying the restaurant when we used the priming factor, two contrast codes, and the interactions of both codes with the priming factor as predictor variables ( $F(1, 198) = 3.57$ ,  $p = .06$ ). When we add the thought-listing difference score to this model as a predictor variable, the interaction between code 2 and the priming factor drops to nonsignificance ( $F(1, 197) = 1.50$ ,  $p = .22$ ). A marginally significant Sobel (1982) test suggests partial mediation ( $z = 1.82$ ,  $p = .07$ ).

### Discussion

Study 3's results support  $H_1$  and  $H_2$  using a more subtle measure of inferred similarity—namely, participants' spontaneous thoughts about the reviewer. When self-related thoughts are externally made accessible, we observe effects similar to those in Studies 1 and 2: Participants infer (1) that ambiguous and similar reviewers hold similar preferences to their own and are persuaded by both types of reviewers and (2) that ambiguous and similar reviewers have more similar preferences to their own than a dissimilar reviewer and are more persuaded by an ambiguous or similar reviewer than by a dissimilar reviewer. Most important, these findings support  $H_3$ : When the accessibility of other-related thoughts is heightened, people interpret ambiguity more like dissimilarity rather than similarity. By testing this moderation, Study 3 provides additional evidence of our proposed process by showing that the effects of the egocentric anchor depend on its high accessibility (for a discussion of demonstrating process by manipulating the proposed explanatory mechanism, see Spencer, Zanna, and Fong 2005).

### STUDY 4

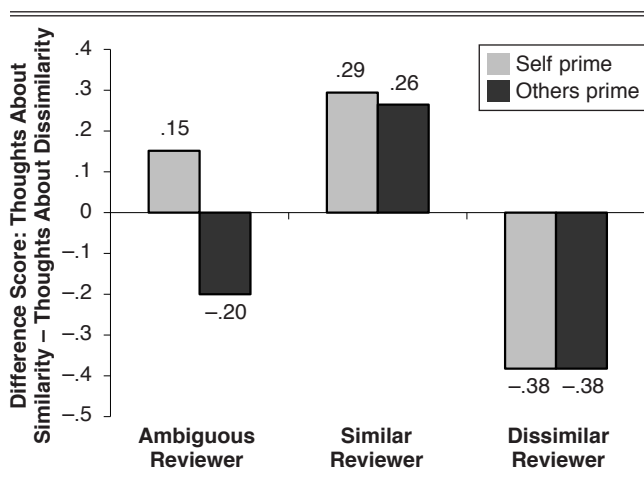
In Study 4, we explore whether cues about the homogeneity of a website user population can attenuate egocentric anchoring-driven effects, as  $H_4$  predicts. Here, we propose that external heterogeneity cues will cast doubt on participants' egocentric anchor-based hypothesis that ambiguous reviewers are similar to the self, prompting attenuation of egocentric anchoring-driven effects on persuasion.

### Participants, Stimuli, and Procedure

A total of 177 undergraduate students participated in this study in exchange for course credit. Study 4 employs a 2

Figure 3

STUDY 3: THOUGHTS ABOUT SIMILARITY AND DISSIMILARITY BETWEEN THE PARTICIPANT AND THE REVIEWER BY REVIEWER INFORMATION CONDITION AND SELF VERSUS OTHERS PRIME CONDITION



(website population: heterogeneous vs. homogeneous)  $\times$  3 (reviewer information: ambiguous vs. similar vs. dissimilar) between-subjects full factorial design. Each participant read a review of “a new album by a new artist” from a website with either a heterogeneous (www.AllMusic.com) user population or a relatively homogeneous user population (www.CollegeMusic.com). The www.AllMusic.com website was described as a “website [that] features reviews written by all different types of music lovers about a wide variety of music genres,” while www.CollegeMusic.com was described as “a website [that] features reviews that college students have written about the type of music you’d normally hear on college campuses.” As in Studies 1 and 3, participants were exposed to both a review (see Appendix B) and a single reviewer profile. Next, participants rated their likelihood of buying the reviewed album on a 1 (“not at all likely”) to 9 (“very likely”) scale and responded to a manipulation check regarding how diverse they thought the users of the website were in terms of their taste in music also on a 1 (“users all like the same type of music”) to 9 (“users like very different types of music”) scale.

### Results

**Manipulation check.** We regressed the heterogeneity manipulation check on the two reviewer contrast codes, the website population factor, and the interactions between the website population factor and the two contrast codes. The only significant effect was for the website population factor: Participants thought the music tastes of the www.AllMusic.com users ( $M = 7.10$ ) were more diverse than those of the www.CollegeMusic.com users ( $M = 4.85$ ;  $F(1, 171) = 52.84$ ,  $p < .0001$ ).<sup>9</sup>

**Likelihood of buying the new album.** To test  $H_4$ , we used the same model used for the manipulation check to predict participants’ likelihood of buying the album.<sup>10</sup> Consistent with our theory, the interaction between the similar versus ambiguous reviewer contrast code and the website population factor in this analysis was significant ( $F(1, 171) = 4.52$ ,  $p < .05$ ), such that we replicated the egocentric anchoring results obtained in prior studies when the website population is homogeneous (thus confirming the anchor-provided hypothesis of similarity) but not when the population is heterogeneous (thus providing disconfirming evidence) (for details, see Figure 4). Follow-up analysis in the homogeneous user population conditions revealed that participants were more likely to buy the album in the ambiguous reviewer ( $M = 3.40$ ) and similar reviewer ( $M = 3.23$ ) conditions than in the dissimilar reviewer condition ( $M = 2.41$ ;  $F(1, 86) = 6.73$ ,  $p < .05$ ). There was no difference in likelihood of buying the album across the ambiguous versus similar reviewer conditions ( $F(1, 86) = .18$ ,  $p = .68$ ). In contrast, follow-up analyses in the heterogeneous user population condition revealed no difference in likelihood of buying the album between the ambiguous and similar versus

dissimilar reviewer conditions ( $M_{\text{ambiguous}} = 2.31$ ,  $M_{\text{similar}} = 3.32$ ,  $M_{\text{dissimilar}} = 2.39$ ;  $F(1, 85) = 1.75$ ,  $p = .19$ ). Furthermore, participants were more likely to buy the album in the similar versus ambiguous reviewer condition ( $F(1, 85) = 6.89$ ,  $p < .01$ ). The same alternative contrast codes used in Study 3 to analyze the others prime condition revealed that, for participants in the heterogeneous user population condition, likelihood of buying the album is greater in the similar reviewer condition than in the ambiguous and dissimilar reviewer conditions ( $F(1, 85) = 8.54$ ,  $p < .01$ ) and equivalent in the ambiguous and dissimilar reviewer conditions ( $F(1, 85) = .04$ ,  $p = .84$ ).

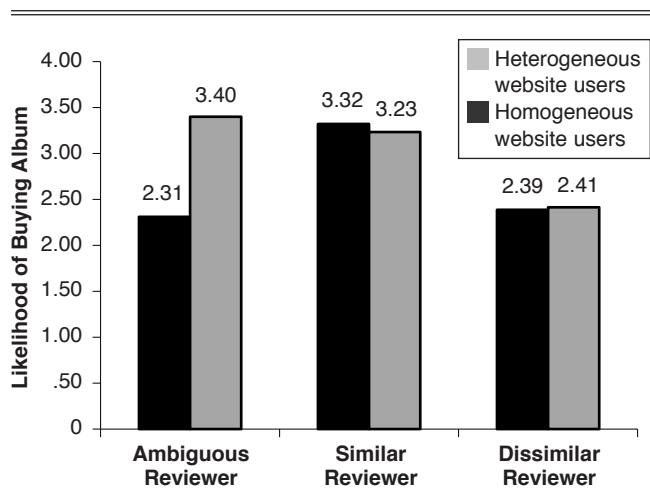
### Discussion

In addition to replicating support for  $H_1$  and  $H_2$ , Study 4 finds support for  $H_4$ . The results show that consumers are sensitive to cues in the retail environment that disconfirm the hypothesis of general similarity suggested by the self anchor, demonstrating that consumers recognize when such an anchor is inappropriate. As a result, ambiguous reviewers exert less persuasive influence than similar reviewers and generate the same level of persuasion as dissimilar reviewers. Thus, Study 4 demonstrates how the egocentric anchor operates: Although the initial accessibility of the anchor can drive inferences and persuasion when no hypothesis-disconfirming evidence is present, external sources of information can attenuate these effects.

### GENERAL DISCUSSION

Online retailers recognize the importance of consumer reviews: In a recent survey, 61% of online retailers indicated that they use customer reviews, and 71% rated them as “very effective” tools for motivating consumers (Sullivan 2009). However, no prior work has addressed how consumers respond to product recommendations when they face the burden of evaluating the ambiguous recommendation sources often seen online. We demonstrate that, in general, consumers resolve reviewer ambiguity by anchoring on the self, inferring that an ambiguous reviewer holds simi-

Figure 4  
STUDY 4: PERSUASIVENESS OF ALBUM REVIEW BY REVIEWER INFORMATION CONDITION AND WEBSITE USER POPULATION



<sup>9</sup>In a separate analysis, we regressed the manipulation check item on reviewer information condition treated as a three-level categorical variable crossed with the website population factor. Again, only the website population factor was significant ( $F(1, 171) = 52.84$ ,  $p < .0001$ ).

<sup>10</sup>In a separate analysis, we regressed likelihood of buying the album on reviewer information condition treated as a three-level categorical variable crossed with the website population factor. Only the reviewer factor was significant ( $F(2, 171) = 5.06$ ,  $p < .01$ ).

lar preferences to their own. As a result, reviews written by an ambiguous reviewer (1) are similarly persuasive to reviews written by reviewers known to be similar to the self and (2) are more persuasive than reviews written by reviewers known to be dissimilar to the self. Furthermore, we show that egocentric anchoring–driven effects on persuasion can be attenuated either by reducing the likelihood of adopting the self as an anchor or by directly disconfirming the similarity hypothesis, thus prompting adjustment from the use of the self anchor. Importantly, the results across all four of our studies are consistent with an egocentric anchoring account but not with alternative strategies suggested by the missing-information literature (e.g., Dick, Chakravarti, and Biehal 1990).

### *Theoretical Contributions*

The current work offers several theoretical insights. Unlike in West's (1996) studies, we show that consumers may adjust their evaluations of an ambiguous reviewer even when ambiguity is not externally resolved. Furthermore, we contribute to the literature on the ways people integrate others' opinions. Specifically, the results of Study 2 shed additional light on Soll and Larrick's (2009) finding that people faced with numerous opinions (in their case, their own and another person's) only sometimes average these opinions. Our results suggest that people do indeed average across multiple external reviewers. When ambiguity is present, they first use the egocentric anchor to make inferences about the ambiguous reviewer. They then appear to average this reviewer's inferred similarity with that of the other identified reviewers to determine the persuasiveness of the reviews for a given offering.

In addition, our findings contribute to the inference-making literature. We show that preference similarity is readily inferred from a reviewer's identity. In contrast to West's (1996) research, our operationalization of similarity never involves information about specific taste preferences but shows that demographic similarity information is assumed to indicate preference similarity across several product domains. We also document that consumers make inferences about others' preferences in the absence of any information, in contrast to work that has explored inference making on the basis of known attribute information (e.g., Dick, Chakravarti, and Biehal 1990; Raghunathan, Naylor, and Hoyer 2006).

### *Practical Implications*

Marketers are increasingly interested in proactively managing customer-to-customer communication (Godes and Mayzlin 2009). Our research provides advice for managers who allow consumers to post user-generated review content. On the one hand, our research may be used to suggest that ambiguity can maximize the persuasiveness of positive reviews and increase sales. On the other hand, our research offers a caveat: Egocentric inferences can easily be wrong. That is, a consumer's preference structure may be completely unlike the preference structure of an ambiguous reviewer. In such cases, ambiguity may lead consumers to buy products that they neither want nor need, leading to waste and dissatisfaction. To avoid such errors, marketers may focus on limiting egocentric anchoring–driven effects on persuasion either by providing ambient other-related cues

as in Study 3 or by increasing perceptions of heterogeneity in a user population, as we did in Study 4 by manipulating website name. Alternatively, managers may identify reviewers specifically enough to allow accurate reviewer–customer matches or offer filtering tools to identify similar reviewers for a given customer. Such actions may be particularly important for review websites (i.e., “infomediaries”) that build their customer base by providing well-tailored, interpretable information regarding multiple products and firms.

### *Limitations and Avenues for Further Research*

The current research suggests numerous avenues for further research. First, although we study both single-product, single-reviewer contexts and multiproduct, multi-reviewer contexts, our experimental paradigms are still far simpler than many review environments that exist in the marketplace: Online retailers may provide access to hundreds of reviews for a single product that may vary greatly in terms of positivity. The aggregate analysis in Study 2 suggests that more complex environments can alter the strength of an ambiguous reviewer's recommendation; further research might explore whether it is indeed the case that contexts with multiple offerings and/or reviewers are more likely to reveal a cost of ambiguity. Future work might also consider how the effect of an ambiguous reviewer may change when presented in an informationally imbalanced context (i.e., when the product with an ambiguous reviewer has many more or fewer reviews than other products).

Second, alternative operationalizations of our key constructs offer additional areas for further research. For example, future work might test other types of similarity besides demographics for equivalent effects. In addition, we note that perceived similarity between participants and reviewers was only moderate to high in our studies. Future work might test whether ambiguous reviewers are still as persuasive as similar reviewers when reviewers are nearly identical to the reader. Further research might also identify other nonself primes (i.e., any non-self-focused construct or an environment that highlights foreign cultures, different opinions, or unfamiliar products) that may moderate our effects. Finally, given that our studies all employ moderately positive (or, in Study 1, moderately negative) reviews and in light of recent findings by Gershoff, Mukherjee, and Mukhopadhyay (2007) that negative reviews may not be as diagnostic as positive reviews, further research might also explore whether reviewer information plays as critical a role in influencing persuasion when reviews are extreme in valence.

Finally, further research might consider our findings in a Bayesian framework. Our findings indicate that consumers tend to treat ambiguous reviewers as being similar to themselves and then to weight multiple reviews for a single offering in a manner consistent with Bayes' theorem. The initial inference that ambiguous reviewers are similar to the self is not, however, consistent with a Bayesian process that would underweight the certainty of the imputed information and employ an averaging rule for its expected value (see Bradlow, Hu, and Ho 2004). Unless prompted to the contrary, we find little evidence that consumers recognize and treat ambiguity as a lack of knowledge, as they likely should (Alba and Hutchinson 2000). Rather, they appear to be confident that their egocentric inferences are an appropriate basis for evaluating the utility of a piece of information. As

such, this may be a case in which consumers' miscalibration leads to nonoptimal decision making. A Bayes theorem approach would provide normative insights into the way that missing information should be imputed, allowing for explorations of how biased processing may be better calibrated.

*Conclusion*

Our research contributes to understanding how consumers interpret others' opinions in an online world that often allows people to customize the level of personal identification that accompanies the opinions they share. When personal information is ambiguous, we demonstrate across four studies that readers tend to see themselves in the unidentified reviewer, regardless of how similar or dissimilar the unidentified reviewer may actually be. Given the multitude of "advice-giving" situations consumers experience online through social networking sites, streaming media, and new forms of marketing, understanding how consumers advise and listen to one another in these contexts is likely to be increasingly important for both marketer success and consumer well-being.

APPENDIX A

*Positive Review from Study 1*

Seaside Resort offers good experience

My friends and I just returned from our vacation at the X resort this weekend. The resort was all-inclusive so we didn't venture out for food. The food ended up being pretty tasty. Our hotel room window overlooked the ocean, room service was usually pretty fast, and the resort offered a good variety of activities. All in all I would give this place 7 stars. It's not the best resort out there, but I would definitely recommend it.

Overall rating: ★★★★★★☆☆☆☆

*Negative Review from Study 1*

Seaside Resort offers poor experience

My friends and I just returned from our vacation at the X resort this weekend. The resort was all-inclusive so we didn't venture out for food. The food ended up being pretty bland. Our hotel room window overlooked the parking lot, room service was slow, and the resort offered little variety in activities. All in all I would give this place 3 stars. It's not the best resort out there, and I wouldn't really recommend it.

Overall rating: ★★★☆☆☆☆☆☆☆

APPENDIX B

*Restaurant Reviews from Study 2 (All Reviewers Gave the Restaurant Four out of Six Stars)*

*Review 1 of Restaurant ABC.* My friends and I had dinner at Restaurant ABC last night. Although the service was a bit slow, the food was great and it had a decent atmosphere. We didn't have to wait that long for a table and the restaurant (including the bathroom) was fairly clean. All in all, I would give this place four stars: not my absolute favorite place to eat, but at least worth trying.

*Review 2 of Restaurant ABC.* Restaurant ABC is a good casual place to go for dinner: I'd give it four out of six stars. The restaurant is always clean and the waitstaff are always nice. The food is better sometimes than others, though. The food can be slow to come out of the kitchen, but it's always served nice and hot, and the prices are generally a good deal.

*Review 3 of Restaurant ABC.* The service at Restaurant ABC is good despite the fact that they are busy. The owners are friendly. The food tasted pretty good too, although I've had better. This is probably a place we'd return to for a moderately special occasion, because it's nice and not over the top. Certainly, at least to try the other things on the menu. Four stars.

*Review 1 of Restaurant XYZ.* At Restaurant XYZ, the food is pretty standard—it's all good, just nothing very unusual or exciting. The hostess usually seats you fairly quickly, and the waiters and waitresses are always courteous. The ambience inside the restaurant is not very exciting, so my overall rating is four stars. It's not where I'd go for special occasions, but I do like to go there occasionally for casual dinners with friends.

*Review 2 of Restaurant XYZ.* Restaurant XYZ is a good place to grab a quick bite to eat. Our table service was good, and the food was adequate. Our server was fairly quick to refill our drinks, but a little slow with the order and with bringing out the food. I'd say the atmosphere was pretty typical of this type of restaurant. My rating is a 4 (out of 6).

*Review 3 of Restaurant XYZ.* I can somewhat recommend Restaurant XYZ (four out of six stars). It's not my favorite restaurant, but it does have good food and reasonable prices and portion sizes. The service is usually friendly, although not always fast or completely professional (although they mean well). The menu has a wide selection, so pretty much everyone should be able to find something they like.

*Album Review from Study 4*

"I enjoyed the new album by NEW ARTIST X. Although there were some parts I wasn't crazy about, overall the

Table 1A  
INFORMATION PROVIDED IN SIMILAR AND DISSIMILAR  
REVIEWER CONDITIONS IN PILOT STUDY AND  
STUDIES 1, 3, AND 4

	<i>Similar Reviewer Condition</i>	<i>Dissimilar Reviewer Condition</i>
Date review was written	[Date just before study was conducted]	[Date just before study was conducted]
User ID #	RR1378	RR1378
Age	20	42
Occupation	Student	Employed Full-Time
Hometown	[Town in same state as university participants attend]	[Town in a state in another part of the country (over 2,000 miles away)]
Current location	[Same state as university participants attend]	[State in another part of the country (over 2000 miles away)]
Gender	[Same as participant]	[Different from participant]
Birth date	June 2, 1987	June 2, 1965
University attended	[Same university participants attend]	[University in another part of the country (over 2000 miles away)]

album was good. It's the kind of album I can definitely see myself listening to more than once. All in all, I would give this album 4 [out of six] stars: not my absolute favorite, but worth listening to."

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