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Asymmetries Between Positives and Negatives

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Abstract

How people react to negatives (what they dislike) is not always symmetric to how they react to positives (what they like). We propose a theoretical framework that links three potentially general types of positive–negative asymmetries: asymmetry in prediction errors (people err more when predicting others' attitudes about positives than about negatives), asymmetry in consensus (people agree more among themselves about negatives than about positives), and asymmetry in base rates (there are more negatives than positives). Our theory further explores a moderator for these asymmetries – importance of the stimulus to the self: greater importance engenders greater positive–negative asymmetries. We provide empirical evidence for our theory and discuss the boundaries and implications of our propositions and findings.

Do you like blue as the color for a sofa? Would you like living in Detroit? Do you find George Clooney good-looking? Such questions concern your attitudes. Toward most stimuli individuals hold either a positive attitude (liking, finding appealing, etc.) or a negative attitude (disliking, finding unattractive, etc.), albeit sometimes only weakly (e.g., Slovic, Finucane, Peters, & MacGregor, 2002; Zajonc, 1980). Although context can influence the judgment of a stimulus, individuals have a natural (default) attitude about the valence of most stimuli. For example, mice may appear less disgusting when compared with cockroaches than when compared with cats, but most people's natural (default) attitude toward mice is negative. In this research, we explore such default attitudes.

Assuming that you have formed answers to our initial questions, then consider these follow-up questions: Do you think your friend Jane likes blue as a sofa color? Do you think your classmate John would like living in Detroit? Do you think your neighbor Pat finds George Clooney good-looking? These questions concern your predictions of others' attitudes. In this article, we explore potential asymmetries between positives (what people like) and negatives (what people dislike). For example, if you like blue as the color of your sofa and dislike orange, are you more likely to err when predicting Jane's attitude toward one color or the other? Or, are you more likely to err when predicting your colleagues' reactions to a research paper that you find intriguing or a research paper that you find insipid? By investigating potential positive–negative asymmetries in prediction errors, we also explore other positive–negative asymmetries, notably, asymmetries in consensus and in base rates.

Framework

Figure 1 depicts a general framework that forms the core of our investigation. We begin, at Level 1 of the framework, by observing that in many domains *people reveal larger prediction errors about what they themselves like than about what they themselves dislike*. For example, suppose you like blue as the color of your sofa and dislike orange. You are more likely to err when predicting

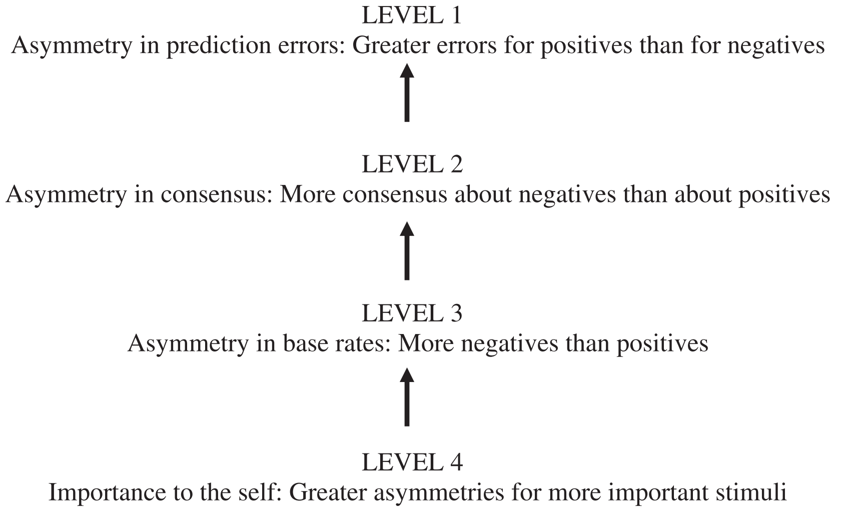

Figure 1 A four-level theory depicting links between the nature of stimuli under consideration, and asymmetries in base rates, consensus, and prediction errors.

whether Jane likes blue as her sofa color than when predicting whether she likes orange as a sofa color.

Our theory attributes the asymmetry in prediction errors (Level 1) to asymmetry in consensus (Level 2). We observe that in many domains, *people agree more about what they dislike than about what they like*. For example, if you dislike orange as a sofa color, chances are that Jane also dislikes orange as a sofa color; if you like blue as a sofa color, chances are smaller that Jane also likes blue as a sofa color. We term such asymmetries as *negative consensus*.

The asymmetry in prediction errors at Level 1 is a result of a combination of two effects: the asymmetry in consensus at Level 2 and projection bias. Projection bias refers to the tendency to use one's own attitudes as a guide to predict others' attitudes (e.g., Bauman & Geher, 2002; Krueger & Clement, 1994; Krueger & Stanke, 2001; Naylor, Lamberton, & Norton, 2011; Orhun & Urminsky, 2013; Ross, Greene, & House, 1977). As people predict by projection of their own attitudes, they will form accurate predictions of others' opinions of stimuli about which consensus is high and inaccurate predictions of others' opinions of stimuli about which consensus is low. In this sense, the asymmetry in consensus (Level 2) is a precondition of the asymmetry in prediction errors (Level 1).

Then what causes the asymmetry in consensus? Answering the question leads us to Level 3 of our framework, regarding asymmetry in base rates. We propose and find that in many domains, *there are more stimuli that people dislike than stimuli that people like*. For example, there are more colors that you dislike as the color for your sofa than colors that you like as the color for your sofa.

Two questions naturally arise here. First, why is the asymmetry in consensus (Level 2) related to the asymmetry in base rates (Level 3)? Second, why does the asymmetry in base rates exist in the first place? We answer the first question first. The asymmetry in consensus (Level 2) is a logical consequence of the asymmetry in base rates (Level 3). That is, as long as there are more disliked items than liked items in a given domain, then, logically, there will be more consensus among individuals about what they dislike than about what they like in that domain. We provide a formal mathematical proof of this relationship in the Appendix. Although this relationship is a logical deduction rather than an independent hypothesis, it is not obvious and has never been explicitly recognized in the literature.

We now turn to the second question: why does the asymmetry in base rates (Level 3) exist? In other words, why are there more disliked items than liked items? This question brings us to Level 4 of our framework. We want to make it clear that our analysis below is speculative, and the reader should treat it as exploratory. From an evolutionary perspective, the adaptive cost of liking – and thus mistakenly approaching – something that was harmful may often have been far greater than the adaptive cost of disliking – and thus mistakenly avoiding – something that was not harmful (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Cacioppo, Gardner, & Berntson, 1997; Fazio, Eiser, & Shook, 2004; Hsee, Tu, Lu, & Ruan, 2014; Rozin & Royzman, 2001; Shook, Fazio, & Eiser, 2007; Taylor, 1991). In their long struggle for survival, people have learned that it is more costly to misidentify a wolf as a deer than misidentify a deer as a wolf, more costly to misidentify poisonous water as innocuous than misidentify innocuous water as poisonous, and more costly to misidentify an enemy to be a friend than to misidentify a friend to be an enemy. From such an evolutionary perspective, it seems more prudent for people to set a higher threshold for liking than for disliking. Thus, it seems plausible that people are more likely to deem an external stimulus negative than positive, hence the negative majority phenomenon.

The above analysis does not mean that disliked stimuli always outnumber liked stimuli. Instead, it implies a moderator for the asymmetry in base rates – importance. The more important a given domain is to the self, the higher a threshold of liking it would be prudent to set, and hence, the more likely the asymmetry in base rates will arise. For example, it would be prudent for people to set a higher threshold of liking for liquids that they would potentially drink than for liquids in general, and hence, there will be a stronger asymmetry in base rates for liquids as potential drinks than for liquids in general. In the General Discussion, we will also explain why most items people interact with in their daily lives seem to be positive rather than negative.

Empirical Evidence

We have gathered preliminary evidence for our theory via multiple studies. Study 1 is a demonstration of the asymmetries at Level 1, Level 2, and Level 3. It focused on a domain that is highly relevant to our participants – physical appearance of their peers. Participants (41 college students from a large public university in China) were shown photographs of 30 female students drawn randomly from the student directory of their university. Participants first judged each face as either attractive (positive) or unattractive (negative) and then predicted the percentage of other participants who would judge each face as attractive or unattractive.

The results supported our theory. We start from Level 3 (base rates) and go up. At Level 3, the data revealed the expected asymmetry: across all participants and all faces, the majority (74%) of the expressed attitudes were negative. In other words, participants considered most of their peers unattractive rather than attractive. Moving up to Level 2 (consensus), we used conditional probability to assess asymmetry. Let A_{ij} be the proportion of the other $n-1$ individuals who agree with individual i's attitude about face j. Define a *positive agreement score*, AS_P, as the average A_{ij} across all positive attitudes by all individuals; define a *negative agreement score*, AS_N, as the average A_{ij} across all negative attitudes by all individuals. Then, if an individual has a positive attitude toward some stimulus, AS_P is the average conditional probability (across all individuals and all stimuli) that another individual will also have a positive attitude toward that stimulus; AS_N has the same meaning on the negative side. An asymmetry in consensus is said to occur if AS_N differs from AS_P. In support of our hypothesis, our data demonstrated a marked asymmetry in consensus ($AS_N = 0.75$ and $AS_P = 0.35$, $p < 0.001$). The result suggests that if you find a person unattractive, there is a substantial likelihood that others will also find the person unattractive, but if you find a person attractive, there is only a middling chance that others will agree. This may be good news for those in the dating market. It appears that, in a twist on the old saying, beauty is indeed in the eye of the beholder, but homeliness is more universal.

Finally, we move to Level 1 of our framework, about prediction errors. We define a participant's prediction error, *PE*, for a given face as the difference between his or her prediction of the percentage of participants who will deem that face attractive and the percentage of participants who actually do so. To test for asymmetries in prediction errors, we calculate two sets of *PE*s for each participant: one for faces that the participant deems attractive and one for faces that the participant deems unattractive. An asymmetry in prediction errors is said to arise if the absolute magnitude of PE_P differs from the absolute magnitude of PE_N. The result confirmed our hypothesis. Across all participants, prediction errors were more pronounced for positives than for negatives ($|PE_P| = 23\%$ and $|PE_N| = 5\%$, $p < 0.001$). That is, participants erred more when predicting others' attitudes toward faces they themselves considered attractive than when predicting others' attitudes toward faces they themselves considered unattractive. Note that this asymmetry is distinct from the classic false consensus effect (Ross et al., 1977), which is a general prediction error, not an asymmetry in prediction errors between positives and negatives.

Study 2 replicated the asymmetry findings from Study 1 in a different domain and also investigated the importance of the stimuli as a potential moderator. Participants (74 students from a large university in China) were assigned to either a low-importance condition or a high-importance condition. Participants in the low-importance condition were presented with 20 randomly generated combinations of two Chinese characters; they were asked to indicate whether they liked or disliked each of these character pairs and also to predict the percentage of other participants who would like or dislike each pair. Participants in the high-importance condition were presented with the same list and were asked to indicate whether they liked or disliked each character pair as a potential name for their son and to predict the percentage of other participants who would like or dislike each pair as a potential name for their son. Because the name of one's son is more important to the self than character pairs in general, we predicted a higher threshold for liking and hence, greater asymmetries in the name (high-importance) condition than in the control (low-importance) condition.

The results supported our theory. Again, we consider Level 3 (base rates) first. In the low-importance condition, only 57% of expressed attitudes were negative, but in the high-importance condition, 87% of expressed attitudes were negative ($p < 0.001$). That is, the threshold for liking a two-character pair was higher if it was a potential name for one's son than if not. A similar pattern emerged at Level 2 (consensus). In the low-importance condition, consensus was similar between negatives and positives ($AS_N = 0.65$ and $AS_P = 0.52$, $p < 0.05$). By contrast, in the high-importance condition, consensus was significantly higher for negatives than for positives ($AS_N = 0.88$ and $AS_P = 0.19$, $p < 0.001$). The result suggests that if you dislike a particular name for your son, it is likely that others would also dislike it for their sons, but if you like a particular name for your son, it is much less likely that others would also like it for their sons. Finally, the results at Level 3 (prediction errors) also supported our theory. In the low-importance condition, prediction errors were similar for positives and negatives ($|PE_P| = 6\%$ and $|PE_N| = 16\%$, *n.s.*). By contrast, in the high-importance condition, prediction errors were more pronounced for positives than for negatives ($|PE_P| = 40\%$ and $|PE_N| = 15\%$, $p < 0.01$). Thus, if you like a particular name for your son, not only will others be unlikely to also like this name for their sons, but also you will tend to mistakenly predict that they like it.

Study 3 tapped yet another domain, examining attitudes about different cities. The study built on our earlier studies in two additional ways. First, rather than directly eliciting an attitude valence, we this time explored a more behaviorally inclined response: whether or not one is willing to relocate to a given city. Second, we manipulated importance via a duration of commitment variable: participants were asked to consider relocating for 1 year (low importance) versus for 10 years (high importance). We expected a higher threshold for liking, and hence more asymmetries in the 10-year case than in the 1-year case. Participants (75 students from a large university in China) were presented with the complete list of the 31 commonly recognized major cities in Mainland China (i.e., all the province and autonomous region capitals plus all the autonomous municipalities), minus the city in which the study took place. Participants were asked to imagine that, for career reasons, they had to leave their current city after graduation and live in one of the remaining 30 major cities for a certain period of time. For each city, participants indicated whether or not they were willing to live in that city for 1 year versus for 10 years; they also predicted the percentage of fellow participants who would be willing to live in each city for that duration.

The results replicated the findings of the other studies. In the 1-year (low-importance) condition, the base rate of negatives was 71%; in the 10-year (high-importance) condition, it rose to 93%. The consensus results followed a similar pattern. In the 1-year condition, consensus was somewhat higher for negatives than for positives ($AS_N = 0.76$ and $AS_P = 0.40$, $p < 0.01$); in the 10-year condition, the consensus was much higher for negatives than for positives ($AS_N = 0.93$ and $AS_P = 0.09$, $p < 0.001$). Finally, we also observed the expected results in prediction errors. In the 1-year condition, prediction errors were similar for liked and disliked cities ($|PE_P| = 9\%$ and $|PE_N| = 11\%$, *n.s.*); in the 10-year condition, prediction errors were greater for liked cities than for disliked cities ($|PE_P| = 10\%$ and $|PE_N| = 0\%$, $p < 0.01$).

General Discussion

Our investigation was prompted by an anecdotal experience that, ironically, we know many others have also had. When preparing experimental materials, we found it much easier to identify stimuli that every participant would dislike than stimuli that every participant would like. For instance, virtually everyone is averse to the sound of nails scratching on a blackboard, the smell of a rotten egg, or an electric shock. Not everyone is fond of the sound of jazz, the smell of cologne, or the feel of a massage.

Our framework posits that this valence-based asymmetry in consensus has links that go both "up" and "down," as summarized in Figure 1. Moving upward, the asymmetry in consensus lays the groundwork for the asymmetry in prediction errors. Because everyone indeed dislikes the sound of nails on a blackboard, people will be correct in their forecasts of others' attitudes about this stimulus. But because fewer people like jazz, cologne, and massages, people who like these stimuli will overestimate the percentage of others who share their attitudes. Moving down our four-level framework, we have shown that the asymmetry in consensus logically stems from the asymmetry in base rates: most stimuli are deemed negative. Moving still further down the theoretical framework, we have shown that the tendency to deem stimuli negative is moderated by the extent to which the stimuli are important to the self.

Gershoff, Mukherjee, and Mukhopadhyay (2008) have also identified asymmetries in prediction errors. According to those authors, disliked items typically contain more positive attributes than liked items contain negative attributes, because for an item to be liked, almost all of its attributes need to be positive, but for an item to be disliked, only one of its attributes needs to be negative. Because of this asymmetry, when people predict someone else's attitude toward an item they like, they will have an easy time finding its positive attributes and therefore will correct their projection bias (false consensus), yet when people predict someone else's attitude toward an item they dislike, they will have a difficult time finding its negative attributes and therefore will not correct their projection bias. Consequently, people will err more when making predictions for liked items than for disliked items. Although we have proposed and found a similar asymmetry in prediction errors, our theory for the asymmetry does not rely on the relative ease of finding negative versus positive attributes, but rather on the relative prevalence of liked and disliked items *per se*.

Nevertheless, Gershoff et al.'s (2008) assertion that for an item to be liked, almost all of its attributes need to be positive, but for an item to be disliked, only one of its attributes needs to be negative (see also Rozin & Royzman, 2001) is consistent with our proposition that disliked items often outnumber liked items. Of a typical item, it is much easier for one of its attributes to be negative than for almost all of its attributes to be positive. Therefore, the item is more likely to be disliked than liked; hence, there is a negative majority. Furthermore, we speculate that the more important an item is to the self, the more of its attributes one would require to be positive in order to like the item; therefore, the asymmetry in base rates will also be stronger. This is another way of saying that one's threshold for liking an item will be higher if the item is important rather than unimportant.

The present research informs a long-standing debate concerning departures from normative standards in judgment and decision making. Particularly within economics and related disciplines, it has often been argued that people are more likely to depart from normative predictions in unimportant domains than in important domains because thinking is effortful, and people will rely more on effortless yet error-prone approaches when the issues under consideration are unimportant rather than important. The current research suggests the opposite: people are more likely to err in domains that are important rather than unimportant to them (see Hsee & Rottenstreich, 2004 and Rottenstreich & Hsee, 2001 for similar arguments).

Our research poses an intriguing question: since there are so many negatives, how is it that most people report that life is generally good and that they are happy (e.g., Myers, 1992)? Casual observations also suggest that most things around us – drinks, foods, pets, plants, and so on – are what we like rather than what we dislike. A possible answer is that we try to avoid or discard what we dislike and seek and keep what we like. For example, we may find most liquids aversive, but we try to avoid or get rid of the negative ones (e.g., urine) and seek and keep only the positive ones (e.g., orange juice). That is why most liquids on our dining tables and in our refrigerators are positive rather than negative. Even in our bathrooms, we flush away urine as soon as possible. The same can be said of cities. We may find most cities aversive to live in, but we select to live in cities we like. As a consequence of this active selection process, most stimuli we encounter in daily life are probably positive rather than negative. (By the way, this analysis also hints at the asymmetry in consensus in our theory. Virtually everyone dislikes urine, but not everyone likes orange juice.)

Although our ability to pick and choose may allow us to design our own experiences in a way that makes ourselves happy, it is less likely that we can design stimuli – consumer products, social events, and research papers – in a way that makes others happy. We are good at predicting what makes ourselves happy, yet not as good at predicting what makes others happy. The current research calls attention to this asymmetry and can potentially help people improve their predictions.

One last note: in our opinion, this is one of our better research papers and we predict you will like it too. Is this a prediction error?

Mathematical Appendix

In this section, we provide a proof of the logical equivalence between asymmetric base rates and asymmetric consensus within our analytical framework. We also briefly detail some properties of our analytical framework that led us to settle on it rather than potential alternatives.

Consider n individuals who each hold either a positive or negative attitude about each of m stimuli. So there are nm total attitudes under consideration. Let A_{ij} be the proportion of the other $n-1$ individuals who agree with individual i's attitude about stimulus j. Let the agreement score for positive attitudes, AS_P, be equal to the average A_{ij} across all positive attitudes by all individuals. Let AS_N be similarly defined for negative attitudes. The following lemma shows that asymmetric consensus arises essentially whenever the base rate of attitudes of one valence is greater than the base rate of attitudes of the other valence:

Lemma. Suppose at least two individuals hold opposing attitudes toward at least one item. Then, whenever positive attitudes outnumber negative attitudes (i.e., the total number of positive attitudes is greater than $nm/2$), we will have positive consensus, that is $AS_P > AS_N$, and whenever negative attitudes outnumber positive attitudes, we will have negative consensus, $AS_N > AS_P$.

Proof. It suffices to show that $AS_N > AS_P$ whenever there are more negative than positive attitudes. Denote by L_i and D_i the number of positive ("Like") and negative ("Dislike") attitudes held about stimulus i. By definition $L_i + D_i = n$. The positive agreement score AS_P is equal to $\sum[L_i(L_i-1)/(n-1)]/\sum L_i$; here, as in all that follows, the summation is taken over all stimuli from 1 to m. The negative consensus score AS_N is similarly defined. Thus, $AS_N > AS_P$ whenever $\sum D_i^2/\sum D_i \; > \sum L_i^2/\sum L_i$, or, rearranging terms, whenever $\sum D_i^2 \sum L_i - \sum L_i^2/\sum D_i \; > \; 0$. To show that this last inequality indeed holds whenever $\sum D_i > \sum L_i$, first, let $X = \sum D_i - \sum L_i$. The quantity of interest may then be re-written as $\sum D_i^2 \sum L_i - \sum L_i^2[D_i + X]$. Rearranging yields $\sum L_i\left[\sum D_i^2 - \sum L_i^2\right] - X\sum L_i^2$. The difference of two squares in the left-hand term can be factored: $\sum L_i[\sum(D_i + L_i)(D_i – L_i)] – X\sum L_i^2$. Because $D_i + L_i = n$ and $X = \sum D_i - \sum L_i$, we then have $\sum L_i[\sum nX] - X\sum L_i^2$, or, more simply, $X\left[\sum L_i n - \sum L_i^2\right]$. This quantity is clearly greater than zero, because $X > 0$ by the assumption that there are more negative than positive attitudes, and $n \geq L_i \geq 0$ for all i, with each of these latter inequalities being strict for at least one i by the assumption that at least two individuals disagree about at least one item.

Note that the magnitude of the majority that obtains is not related in a one-to-one manner to the magnitude of the consensus asymmetry that ensues. To illustrate, consider three people that were asked whether they like or dislike cats and dogs. Suppose that of the six total attitudes measured, four are negative. Then there will be negative consensus, but the magnitude of this negative consensus may vary. Suppose two individuals dislike dogs and two dislike cats. In this case, only one person likes each animal; so there is absolutely no positive agreement at all. Indeed, AS_P is equal to 0 and AS_N is equal to ½. Suppose, however, that all three individuals dislike dogs and just one dislikes cats. Now, because two people like cats, there is some positive agreement; in addition, there is complete unanimity about disliking of dogs. Indeed, both agreement scores rise, with AS_P moving to ½ and AS_N moving to ¾.

There are many potential formal structures that might be used to capture the intuition behind positive and negative consensus. In choosing the structure we have presented, we were guided by two considerations. First, AS_P and AS_N satisfy a condition that may be called "independence of dissenting uniformity" (IDU): AS_P remains unchanged if we add a stimulus that all individuals view as negative, and AS_N remains unchanged if we add a stimulus that all individuals view as positive. To illustrate, consider two individuals asked about cats and dogs. Suppose one likes cats and dislikes dogs, and the other has the opposite attitudes. Then, both AS_P and AS_N are equal to ½. Now suppose we add a third stimulus, asking each individual what they think of turtles. If both dislike turtles, then AS_P remains equal to ½ (and AS_N is now ¾); likewise, if both like turtles, then AS_N remains equal to ½ (and AS_P is now ¾). Second, AS_P and AS_N also satisfy a condition of "anonymity": they depend on the number of positive and negative attitudes held toward each stimulus but not on which individuals hold which attitudes.

Short Biographies

Christopher K. Hsee received his PhD from Yale University and is now Theodore O. Yntema Professor of Behavioral Science and Marketing at the University of Chicago Booth School of Business. His research interests include social psychology, decision making, consumer behavior, and subjective wellbeing. His recent work has been published in *Psychological Science*, *Journal of Personality and Social Psychology*, *Journal of Consumer Research*, and *Journal of Marketing Research*.

Yuval Rottenstreich's research focuses on behavioral decision making and behavioral game theory. Before coming to the Rady School of Management, where he currently teaches, Yuval held faculty positions at the University of Chicago, Duke, and New York University. He holds an AB in Economics and Psychology from the University of Pennsylvania and a PhD in Psychology from Stanford University.

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Note

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References

Bauman, K. P., & Geher, G. (2002). We think you agree: The detrimental impact of the false consensus effect on behavior. *Current Psychology*, **21**(4), 293–318.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, **5**(4), 323–370.

Cacioppo, J. T., Gardner W. L., & Berntson, G. G. (1997). Beyond bipolar conceptualizations and measures: The case of attitudes and evaluative space. *Personality and Social Psychological Review*, **1**(1), 3–25.

Fazio, R., Eiser J. R., & Shook, N. J. (2004). Attitude formation through exploration: Valence asymmetries. *Journal of Personality and Social Psychology*, **87**(3), 293–311.

Gershoff, A. D., Mukherjee, A., & Mukhopadhyay, A. (2008). What's not to like? Preference asymmetry in the false consensus effect. *Journal of Consumer Research*, **35**(1), 119–125.

Hsee, C. K., & Rottenstreich, Y. (2004). Music, pandas, and muggers: On the affective psychology of value. *Journal of Experimental Psychology: General*, **133**(1), 23–30.

Hsee, C., Tu, Y., Lu, Z., & Ruan, B. (2014). Approaching aversion: Negative reactions toward approaching stimuli. *Journal of Personality and Social Psychology*, **106**(5), 699–712.

Krueger, J., & Clement, R. W. (1994). The truly false consensus effect: An ineradicable and egocentric bias in social-perception. *Journal of Personality and Social Psychology*, **67**(4), 596–610.

Krueger, J., & Stanke, D. (2001). The role of self-referent and other-referent knowledge in perceptions of group characteristics. *Personality and Social Psychology Bulletin*, **27**(7), 878–888.

Myers, D. G. (1992). *The Pursuit of Happiness: Who Is Happy, and Why?* New York: Avon Books.

Naylor, R. W., Lamberton, C. P., & Norton, D. A. (2011). Seeing ourselves in others: Reviewer ambiguity, egocentric anchoring, and persuasion. *Journal of Marketing Research*, **48**(3), 617–631.

Orhun, Y., & Urminsky, O. (2013). Conditional projection: How own evaluations impact beliefs about others whose choices are known. *Journal of Marketing Research*, **50**(1), 111–124.

Ross, L., Greene D., & House, P. (1977). The "false consensus effect": An egocentric bias in social-perception and attribution processes. *Journal of Experimental Social Psychology*, **13**(3), 279–301.

Rottenstreich, Y., & Hsee, C. K. (2001). Money, kisses, and electric shocks: An affective psychology of risk. *Psychological Science*, **12**(3), 185–190.

Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, **5**(4), 296–320.

Shook, N. J., Fazio R. H., & Eiser, J. R. (2007). Attitude generalization: Similarity, valence, and extremity. *Journal of Experimental Social Psychology*, **43**(4), 641–647.

Slovic, P., Finucane M., Peters, E., & MacGregor, D. G. (2002). The affect heuristic. In T. Cilovich, D. Griffin & D. Kahneman (Eds.), *Heuristics and Biases: The Psychology of Intuitive Judgment* (pp. 397–420). New York: Cambridge University Press.

Taylor, S. E.(1991). Asymmetrical effects of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin*, **110**(1), 67–85.

Zajonc, R. B. (1980). Feeling and thinking – Preferences need no inferences. *American Psychologist*, **35**(2), 151–175.