

7

A Feature-Based Model of Self-Other Comparisons

SARA D. HODGES
University of Oregon

“Well, don’t you look just like your daddy?” “Is my resume stronger than hers?” “Is he as nice as the piano tuner?” “Which would be better for dinner, tamales or tofu?” People make comparisons all day long, attempting to make decisions that will bring them maximum utility and satisfaction. People also use comparisons to increase their understanding (e.g., “Is the war in Iraq more like Vietnam or World War II?”) and as a means of explanation (e.g., “She’s been like a sister to me”). These latter functions of comparison are particularly relevant when the comparison involves the self and another person.

This chapter takes feature matching, a general cognitive model of how people make comparisons, and examines how well this model fits self-other comparisons. In many cases, the model fits very nicely, suggesting that self-other comparisons are just like any other kind of comparison. Under other circumstances, at first glance, outcomes for self-other comparisons appear to differ from those predicted by the general model. However, with closer examination, these apparent deviations can be mostly accounted for by considering special qualities associated with the self, such as familiarity, accessibility, and a motivation to maintain a positive view of the self. The qualities may constitute specific examples of variables known to moderate general feature matching outcomes.

The chapter starts by introducing the feature matching model. It will then cover two “hallmarks” of feature matching, direction of comparison effects and cancellation effects, introducing each one’s role in comparisons in general and then exploring the evidence for these effects in self-other comparisons.

FEATURE MATCHING IN SIMILARITY AND COMPARATIVE JUDGMENTS: SAME DIFFERENCE?

Tversky (1977) originally outlined a featured-based model of comparisons for similarity judgments. His initial model has since been extended to comparative judgments (see for example Hodges, 1997; 1998; Hodges, Bruininks, & Ivy, 2002; Houston, Sherman, & Baker, 1989; 1991), a term used throughout this chapter to designate comparisons that involve ordering two or more items along some continuous dimension (e.g., deciding which of two menus is healthier). The basic idea behind feature matching is that when two items are compared, people match up the features shared by the two items, distinguishing these features from unique (unshared) features. This core process of feature matching is thought to be the same for both similarity judgments (e.g., “How similar are you and your brother?”) and comparative judgments (e.g., “Can you sing better than your brother?”). At first blush, the mechanisms for making similarity judgments and comparative judgments may seem very different, even opposite, from each other: In similarity judgments, people are judging how alike two things are; whereas in comparative judgments, they are judging the difference between two things, in order to determine which of the two is higher on some dimension. However, at their core, these two kinds of judgments are more similar than they may initially appear to be (Medin, Goldstone, & Markman, 1995). Both share a fundamental first step of aligning the qualities of both items in such a way that a comparison can be made.

According to the feature matching model, the number of features shared by two items serves as an initial estimate of their similarity (Tversky, 1977). This estimate is then adjusted depending on the number of “leftover” unique features: A greater number of unique features reduces similarity. Thus, when considering the following resorts:

<u>Resort A:</u>	<u>Resort B:</u>
Stunning views	Stunning views
Excellent restaurants	Excellent restaurants
By the sea	In the mountains
Beautiful golf course	Specializes in spa treatments

the initial estimate of similarity based on the stunning views and excellent restaurants would then be adjusted downward to account for the different locations and the fact that Resort A has golf and Resort B has a spa.

In comparative judgments (e.g., preference judgments or judgments that rank order items along some dimension), shared features, by definition, do not distinguish between the two options. Once shared features are matched up, it is the features that are unique to one option or the other that allow people to decide which option is better (or scarier, or more liberal, or whatever the relevant comparative judgment being made is). In the resort example, people would have

to decide whether they prefer a seaside vacation with golf, or a spa holiday in the mountains.

Thus, matching up shared features is a common element in both similarity and comparative judgments. In order to say how two things are different or similar, we first have to establish the dimension (or dimensions) on which they could possibly (but do not necessarily) share qualities. Of course, when we know exactly where two items stand on a numerical dimension that corresponds to the judgment at hand (e.g., when we are comparing the lengths of two pieces of ribbon and we have measurements of both), this part of comparison seems obvious, automatic, and barely worth discussing, especially when it comes to self-other comparisons: Very few studies of self-other comparison deal with people comparing themselves with others on height!

However, the first step in comparisons (including self-other comparisons) often involves integrating information about multiple features, some of which may be viewed as points along a continuous scale, and others of which are discrete categorical qualities. For example, when asked which piece of ribbon is *best*, we may need to integrate information about length, color, and whether the ribbon is washable. When asked whether one is as smart as one's brother, SAT scores, past verbal sparring matches, and other people's opinions may be called to mind.

This "determination of correspondences between representations" (Gentner & Markman, 1994, p. 157) constitutes a fundamental component of comparison and forms the basis of "alignability." This concept has notably refined Tversky's original comparison model. In Gentner and Markman's words, there is "no difference without similarity" (1994, p. 152). When the representation of one item in a comparison has elements that correspond to the representation of the other item in the comparison (whether those elements are features, points on the same continuum, or relationships), the comparison is said to be alignable. For example, when assessing which of two actresses is more popular, one could align the two actresses' respective standings on features such as average salary per film, whether each has been nominated for an Oscar, and frequency of appearance in the Hollywood tabloids. With the addition of alignability, feature matching can serve as a model for comparisons of items whose features include different scores on the same continuum, as well as items whose features are categorical in nature (Zhang & Markman, 2001).

Although alignability serves as a common basis for making comparisons (Gentner & Markman, 1997), it does not necessarily imply similarity between the items that are compared; it only provides the dimension on which similarity (or dissimilarity, for comparative judgments) will be assessed. In fact, Markman and Gentner (1996) have found that, paradoxically, the presence of alignable differences decreases similarity judgments more than that of nonalignable differences. This explains why the common English expression "that's like apples and oranges" is used to describe things that are very different, rather than using an expression such as, for example, "that's like apples and chairs." The former compares two items that have a number of alignable differences (e.g., color and skin texture) but

that are actually quite similar to each other in many regards (e.g., both are fruits commonly used for snacks and to make juice), whereas the latter compares two items with few commonalities, but also few alignable differences.

DIRECTION OF COMPARISON

Thus, aligning features is the first step in feature matching, and it allows us to see which features are unique to one option or the other. These unique features play a critical role in both similarity and comparative judgments. Furthermore, some unique features are even more important than others, because the two items in a comparison are not interchangeable. Comparisons are generally anchored at one end with a *referent* that serves as a contextual frame. The referent can be thought of as a baseline to which the other object in the comparison, known as the *target* (or subject¹) of comparison, is compared. Designating the referent sets the context of the comparison and determines the backdrop against which the target of comparison will be seen. Thus, when someone says to a woman, “You look just like your mother,” the mother serves as the referent, and the woman being spoken to (the daughter) is the target of comparison.

The dimension (or dimensions) on which a comparison is to be made may be explicitly specified (e.g., “Are you more talkative than your mother?”), but sometimes the comparison dimension has to be extracted from contextual cues (as is the case for metaphors). In the latter case, specifying which item is the referent plays an even greater role in shaping the comparison, by suggesting on which dimensions the target will be compared to the referent (Medin, Goldstone, & Gentner, 1993). For example, when someone says, “The city lights are like stars,” it is the sparkly aspect of stars that is relevant in the comparison, but when someone says, “She’s shooting for the stars,” the distance of the stars forms the base of the metaphor.

Because the features of the target are compared to those of the referent, and because features cannot be distinguished as shared or unique until both options have been experienced, the unique features of the target play a disproportionate weight in judgments. These unique features of the target are “leftover” after the target’s shared features have been matched up with the corresponding features of the referent. Thus, these features play the primary role in determining the “distance” of the target from the referent. Because of this asymmetry, an important premise of Tversky’s feature-based model of comparison is that comparisons have a specified direction, and furthermore, reversing that direction can have major consequences: Borrowing from the earlier vacation locale example, comparing Resort A to Resort B can often mean something quite different from comparing Resort B to Resort A.

The significance of the direction of comparison (and by extension, the assignment of target and referent roles) emerges most vividly in concrete examples. Consider Medin et al.’s (1993) example of the butcher who is compared *to* a surgeon. With the surgeon serving as the referent, defining qualities of surgeons are

associated with the butcher, conjuring up images of a butcher who does meticulous work and has a spotlessly clean shop. Now, consider the surgeon who is compared to a butcher. When the defining qualities of a butcher (perhaps a bloody apron and aggressive knife work come to mind) are used as a referent for describing a surgeon, the comparison is definitely no longer as complimentary. If comparisons were symmetric, it would not make a difference what got compared to what, but clearly, direction of comparison matters.

DETERMINING DIRECTION OF COMPARISON

The direction of a comparison is determined in a number of ways. First and perhaps most simply, explicit verbal instructions can provide a direction of comparison. If someone asks, “Is Fiona as musical as Seth?” Seth’s abilities serve as a benchmark and frame the comparison. Because Seth is referent, the questioner is expecting an answer framed in terms of his talents, e.g., “Almost, but she doesn’t have perfect pitch like he does.” Thus, by linguistically designating one object as the referent, notable aspects of the referent may determine the dimensions on which the comparison is made, if they are not otherwise explicitly stated (see Aguilar & Medin, 1999).

Direction of comparison may also be determined when one option in the comparison has inherent status as a reference point and thus functions as a referent. When graduate programs publish a composite profile of the successful applicant to their program, this profile serves as a referent for assessing the likelihood that a prospective applicant will get in. Other options become referent points in particular contexts. For example, a student applying for a scholarship may compare her application to that of someone who received the scholarship in the past, rather than comparing the past recipient’s file to her own. The previously successful applicant serves as a marker of performance that is at least “good enough.” Note how this second example also demonstrates how an individual’s status as a target of comparison or referent is often not permanent. If the student applying for the scholarship ultimately receives it, then her own application may likely become the referent for the *next* person applying for the scholarship.

More standard or prototypical options also tend to be designated referents. For example, for those of us in North America at least, horses are much more common than zebras, and thus we are more likely to describe a zebra as “like a striped horse” than to describe a horse as a “like a zebra, but without the stripes” (Bowdle & Medin, in press). Salespeople try to sell the “deluxe” version of a product by comparing it to the “standard” version. More familiar or more prominent options also tend to be designated as the referent (Karylowski, 1990; Tversky & Gati, 1978), as do more frequently encountered options (Polk, Behensky, Gonzalez, & Smith, 2002).

Finally, when there is no clear *a priori* reason why one option in a comparison should serve as the referent, people tend to use the first option they encounter as a

referent (Agostinelli, Sherman, Fazio, & Hearst, 1986; Bruine de Bruin & Keren, 2003; Hodges, 1998; Houston et al., 1989). As Beike and Sherman (1998) point out, we tend to say children look like their parents (who precede them chronologically), rather than saying that parents look like their children. Temporal order is particularly likely to determine referent status in contexts where standards are relative. For example, in a figure skating competition, the winning performance might be very good some nights and not so good other nights; there is no absolute referent. In such cases, the first competitor becomes the *de facto* referent: “Yes indeed, Kristy Yamaguchi has set a VERY high standard tonight as the first performer in this competition, but she may have left a tiny gap for one of tonight’s hungry young competitors to take the medal away from her.”

Thus, an item in a comparison becomes the referent when it is designated as such with explicit verbal instructions, or in the absence of such instructions, it functions as the referent because it serves as a standard, because it is more prototypical, or because it is encountered first. Changing the direction of the comparison can markedly change perceptions and evaluations of the items in the comparison. This chapter next addresses direction of comparison effects, introducing them with studies of nonsocial comparisons and then exploring them in self-other comparisons, which largely parallel the results from studies of nonsocial comparisons, as well as demonstrating special qualities of the self that make it disproportionately likely to serve as the referent in self-other comparisons.

DIRECTION OF COMPARISON IN SIMILARITY JUDGMENTS

A study by Tversky and Gati (1978) provided an early and classic example of the importance of direction of comparison in similarity judgments. Participants in their study were asked how similar pairs of countries were. Some subjects were asked how similar the more prominent country was to the less prominent country (i.e., the more prominent country was the target of comparison; the less prominent country was the referent, e.g., “How similar is China to North Korea?”). For other participants, the question was rephrased so that the less prominent country was the target of comparison (e.g., “How similar is North Korea to China?”). Relative to this latter condition, when the more prominent country was compared to the less prominent country, similarity ratings dropped (thus, China was less like North Korea than North Korea was like China). Tversky and Gati explained this finding as resulting from mapping the features of the target country on to those of the referent country. Because subjects knew more about the more prominent countries, they could call to mind more features of these countries. After matching up all the shared features of the two countries, subjects had many “leftover” features of the more prominent countries. Because the unique features of the target drive the judgments in directional comparisons, subjects downgraded their similarity judgments in accordance with the number of unique (leftover) features of the target.

When the *less* prominent country was the target of comparison, subjects had fewer leftover features because they knew less about these countries to begin with. Aguilar and Medin (1999) later identified an important condition that was necessary for this asymmetry in similarity judgments to occur: The same common features must come to mind for both items in the pair, regardless of the direction of comparison.

Tversky and Gati's (1978) results were soon tested and extended to the realm of self-other similarity judgments. Consistent with the idea that the self is more "prominent" than others, Srull and Gaelick (1983) found that college students rated other people in general as being more similar to themselves than they rated themselves as being similar to others. In a study conducted about the same time as Srull and Gaelick's, Holyoak and Gordon (1983, Study 1) used a specific comparison other—in this case, a friend of the participant—rather than collective "others" and found similar results (that is, comparing a specific other to the self produced higher similarity ratings than comparing the self to a specific other).

These initial studies only addressed direction of comparison effects in judgments of *global* similarity between the self and other, but the effect is seen for self-other similarity judgments on specific dimensions as well. For example, Mussweiler (2001) asked participants to rate the similarity of the self and the description of a stimulus person in terms of assertiveness. He found results consistent with the studies measuring global similarity: Self-other similarity ratings were lower when the self was compared to the other and higher when the other was compared to the self. Karylowski (1989) also used specific personality dimensions (such as stubbornness and self-confidence) and found that self-other similarity ratings were higher when the others were compared to self than when the self was compared to others.

Both Srull and Gaelick (1983) and Holyoak and Gordon (1983) conducted follow-up studies testing Tversky and Gati's (1978) theory that direction of comparison makes a greater difference when asymmetry in knowledge about the two items (or people) in the comparison is greater. Changing the direction of comparison should have less of an effect if equal amounts of information are known about the self and other. In their second study, Srull and Gaelick demonstrated that the direction of comparison asymmetry was more pronounced for unfamiliar others than it was for familiar others. With less knowledge about the unfamiliar others, participants were left with many leftover unique self features when they compared the self to the unfamiliar other, which resulted in lower similarity ratings. When comparing themselves to familiar others, however, the information asymmetry was less pronounced and direction of comparison had less of an effect on similarity judgments. Thus, reversing direction of comparison had a much greater effect when comparing Barbara Walters and the self than it did when comparing one's mother and the self.

Holyoak and Gordon chose to vary familiarity by using stereotypes of groups, rather than specific others. Participants were asked to evaluate the similarity between the self and the average members of various stereotyped groups. When the

group stereotype was less familiar to participants, it was harder for them to generate attributes of the average member of the group, and thus, direction of comparison effects in similarity judgments were highly pronounced. However, when the stereotyped others were members of highly familiar groups (in this particular study, “jocks” and “preppies”) and it was easy for participants to generate attributes for the stereotyped groups (just as it was easy for them to generate attributes about the self), the direction of comparison effect disappeared so that comparing the self to a member of a stereotyped group actually resulted in (nonsignificantly) higher similarity ratings than comparing the member of the stereotyped group to self. In two studies, Karylowski (1989; 1990) used specific comparison others who were probably quite familiar to participants (the “others” in the comparison were names of people provided idiographically by the participants themselves), and this familiarity appeared to dampen the asymmetry effect as well, just as self comparisons with more familiar stereotyped groups had in Holyoak and Gordon’s study. Consistent with Tversky’s (1977) original idea of “prominence,” direction of comparison appears to have its greatest effect on self-other similarity judgments when it is hard to call to mind relevant information about the other person (something which would never be true about the readily-accessible self).

CHANGING DIRECTION IS NOT ALWAYS THAT EASY

As discussed earlier, explicit verbal instructions are just one of many factors that influence direction of comparison. In some cases, such instructions may not be the dominant factor, and thus, they may not successfully produce the intended direction of comparison. The self holds special status in self-other comparisons (at least in Western cultures)—not just because of motivated self favoring biases (e.g., Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995; Taylor & Brown, 1988; Weinstein, 1980), but also because of cognitive factors. The self forms a readily available framework or schema for processing incoming social information (Clement & Krueger, 2000; Rogers, Kuiper, & Kirker, 1977). Although representations of other highly familiar and important people in our lives (for example, significant others and parents) also appear to shape person perception (e.g., Andersen, Glassman, Chen, & Cole, 1995), the self provides the most highly elaborated and accessible social representation. The pervasiveness of projective phenomena—that is, transferring aspects of the self to others (e.g., Dunning & Hayes, 1996; Hodges, Johnsen & Scott, 2002; Krueger, 2000; Marks & Miller, 1987; Nickerson, 1999) and the over-perception of the self as the focus of social interactions (Vorauer, 2001; Gilovich & Savitsky, 1999) vividly illustrate how the self is never far from our thoughts.

This accessibility has led researchers to categorize the self as a “habitual referent” (Catrambone, Beike, & Niedenthal, 1996; Karylowski, 1990). Thus, in the absence of other relevant prototypes or standards (e.g., explicit criteria, such as listing the minimum GPA and test scores required for a scholarship), the self can

be thought of as a multi-purpose default reference point when evaluating people. Catrambone et al. (1996) cleverly demonstrated the self's habitual referent status by manipulating whether or not direction of comparison was provided with explicit verbal instructions. They either provided participants with instructions to compare "How similar are you to X?" or "How similar is X to you?", where "X" was a typical member of one of the stereotyped groups used in Holyoak and Gordon's 1983 study, or they provided no explicit cues, simply listing the self and the name of one of the stereotyped groups vertically on the screen (in a counterbalanced order) and asking participants to judge how similar the two were.

When no explicit cues were provided, self-other similarity judgments resembled those in the self as referent condition ("compare other to self" instructions); specifically, they were higher than the similarity ratings of participants who were instructed to "compare self to other," leading Catrambone et al. (1996) to conclude that in the absence of any explicit instructions about direction of comparison, the self is used as referent. Catrambone et al. obtained the same pattern of results when a highly familiar country took the place of the self and a less familiar country took the place of the stereotyped group member in the comparisons: Once again, when no explicit direction of comparison was provided, similarity ratings resembled those provided by participants who were comparing the less familiar country to the more familiar country, suggesting that the more familiar country was serving as the referent. These parallel findings for familiar countries and for the self suggest that the self's "privileged" place as a referent may be due to familiarity.

The self may also be resistant to inducements to reverse the default direction of comparison (and thus less likely to yield its role as referent). In a study of self-other similarity comparisons by Karylowski (1990), participants were asked to provide personality traits that were highly characteristic of the self (self-relevant traits) as well as personality traits that were highly characteristic of people they knew well (other-relevant traits). When making similarity judgments for self-relevant traits between the self and the well-known others, the self would be expected to serve as the default referent, resulting in participants comparing other to self. For other-relevant traits, the well-known other should serve as a standard, and thus be the default referent, causing participants to compare self to other. Karylowski then provided explicit direction of comparison instructions that were either consistent with the expected default direction of comparison, or inconsistent with it (e.g., in self-relevant domains, asking participants to compare the self to the other person—in essence, to use the other person as the referent when the self would be the default referent).

The results showed that when the other person was the default referent, consistent explicit direction of comparison instructions facilitated self-other similarity judgments (judgments were made more quickly), while inconsistent instructions impeded self-other similarity judgments. However, when the self was a default referent in the domain of interest, explicit direction of comparison instructions had no effect on the speed of similarity judgments. These results suggest that the

self is more resistant to attempts to dislodge it from its referent status than are other social entities (e.g., well-known others).

However, conditions have been identified under which the self may be more inclined to serve as the target of a comparison. The self is unique in that it can be viewed as a subject (the “I” self, as in the agent who is deciding where to go on vacation) or as an object (the “me” self, as in “What do other people think of me?”), whereas other items in comparisons are always objects. Considering the self in its object role appears to facilitate the use of the self as a target of comparison. Work by Karyłowski and Skarzynksa (1992) suggests that priming self-knowledge (an exercise that would make participants objectively self-aware) is necessary in order to find the direction of comparison effects on self-other similarity reported by Srull and Gaelick (1983) and by Holyoak and Gordon (1983). Without self-priming, similarity judgments were either unchanged by direction of comparison, or even reversed slightly in the opposite direction (i.e., greater similarity was reported when the self was compared to the other).

DIRECTION OF COMPARISON IN COMPARATIVE JUDGMENTS

Direction of comparison influences not only similarity ratings of the two items in a comparison, but it also affects their relative standing on other dimensions. Changing the direction of comparison has been repeatedly demonstrated to cause reversals in how two items are ranked on the dimension on which they are being compared (e.g., comparing A to B may result in a preference for A, whereas comparing B to A results in a preference for B). Once again, the model developed to predict the outcome of nonsocial comparative judgments does a good job predicting results for self-other comparisons, as long as the special nature of the self as a habitual referent and as a favored (and protected) entity are taken into account.

To introduce the rating reversals produced by changing the direction of comparison, we turn first to a set of compelling studies performed by Houston, Sherman, and Baker (1989; 1991) outside of the realm of self-other judgments. In these studies, the comparison dimension was relative evaluation; in other words, people were asked which of two options they preferred. Houston et al. (1989) constructed descriptions of pairs of objects (for example, cars or college courses) or people (potential blind dates or work partners) that had equal numbers of comparable positive features and negative features, and all of the descriptions received equivalent overall ratings. However, the pairs varied as to which type of features (positive or negative) was shared and which was unique. For example (see Table 7.1), a pair of blind date candidates might both be described as sloppy and jealous (shared negative features) but one might also be creative and honest, whereas the other could be considerate and witty (unique positive features). Conversely, in a pair that shared positive features but had unique negative features, the two blind dates might both be creative and honest, but one would be sloppy and jealous, while the other was lazy and vain. Participants were presented first with the description

TABLE 7.1 Schematic of Houston, Sherman, & Baker's (1989) Design, Using Comparisons of Potential Blind Dates.

Condition	Description of Potential Blind Date #1 (Referent)	Description of Potential Blind Date #2 (Target)	Which Date Preferred?
Shared negative features/ Unique positive features	Creative (+) Honest (+) Sloppy (-) Jealous (-)	Considerate (+) Witty (+) Sloppy (-) Jealous (-)	#2 (Target), due to attraction to unique features of target, which are positive
Shared positive features/ Unique negative features	Creative (+) Honest (+) Sloppy (-) Jealous (-)	Creative (+) Honest (+) Lazy (-) Vain (-)	#1 (Referent), due to avoidance of unique features of target, which are negative

Note. The shared features in a particular condition are italicized; capitalized unique features reflect the relatively greater amount of attention paid to these features, and the valence of each feature is in parentheses.

of one option, and then the other (with the order of the particular descriptions counterbalanced). They were then asked to compare the second description to the first, and to indicate which of the two options they preferred.

When participants saw pairs that had shared negative features and unique positive features (top half of Table 7.1), they had a noted preference for the target of comparison, which in the absence of explicit verbal instructions or other markers indicating referent status was the second option in a comparison. This preference was driven by the disproportionate attention placed on the unique features of the target of comparison. As participants encountered the second option, they mapped its shared features on to those of the referent, leaving the target's unique features, which happened to be positive in this case, to stand out.

When the valence of the shared and unique features was reversed, the preferences reversed as well (bottom half of Table 7.1). Participants who saw pairs that had shared positive features but unique negative features mapped the positive features of the target of comparison on to those same shared positive features of the referent and were left with the unique negative features of the target of comparison (lazy and vain, in this case). Avoidance of these salient unique negative features made choosers prefer the referent. Several studies have replicated Houston et al.'s (1989) basic findings (e.g., Hodges, 1998; Houston & Sherman, 1995; Houston et al., 1991; Sanbonmatsu, Kardes, & Gibson, 1991).

Note that the same description of an option could be used in both the shared negative/unique positive condition *and* the shared positive/unique negative condition (e.g., the same description appears as the referent for both conditions in Table 7.1). Furthermore, all of the descriptions were viewed as equally desirable when rated in isolation. Thus, unlike other "context effects" where, for example, baked chicken sounds deliciously gourmet after eating peanut butter crackers for a week, the context in Houston et al.'s (1989) study was not determined by the

overall rating of the other option in the pair, but by the valence of features that the other option either shared or did not share.

Preference judgments require people to decide which of the available options is superior on an overall evaluative dimension, but preference judgments are not the only kind of comparative judgments people make. Sometimes, we are interested in picking the option that is superlative on a specific dimension, just as American high school yearbooks name the student who is the “Most Athletic,” or “Most Likely to Succeed,” in addition to identifying who is “Best All-Around.” In fact, when trying to apply feature matching models to self-other comparisons, “preference” judgments do not really make sense. We are rarely asked to specify a preference between ourselves and another person, and if we were (and we answered honestly), the answer seems a foregone conclusion, given the pervasiveness of self-favoring biases. Comparative judgments of the self and other on specific dimensions, such as intelligence, electability, or fitness, are much more common. And, not surprisingly, designating the self or the other as the referent in these comparisons has important consequences. Think how different the implied meaning of, “You’re no wiser than I” is from the meaning of, “I’m no wiser than you,” even though both statements could be described as suggesting that the self and other possess similar levels of wisdom.

Hoorens (1995) directly addressed the question of direction of comparison effects in self-other judgments made on some dimension other than similarity by examining whether direction of comparison affected the magnitude of “self-favoring biases” (the tendency to see the self as better off than others; see Alicke, this volume). Hoorens’ study manipulated direction of comparison explicitly, by asking student participants to compare themselves to the average student, or to compare the average student to themselves. First and foremost, but not surprisingly, Hoorens’ participants revealed a strong overall self-favoring bias. More interestingly, direction of comparison significantly moderated the size of the self-favoring bias only when judgments were about positive domains. Relative to when participants compared the average student to themselves, participants rated themselves as higher on positive traits and thought good things were more likely to happen to them than other people when they compared themselves to the average student (see also Wänke, Schwarz, & Noelle-Neumann, 1995, for similar results). In fact, when making likelihood estimates for positive events, the direction of comparison effect erased the usual self-favoring bias: When asked to compare others to the self in terms of the likelihood of good future events occurring, participants’ estimates for the self and other were essentially equal.

However, there was no effect of direction of comparison on the negative side: Participants generally thought that negative events were less likely to happen to the self than to others and also thought that negative traits were less attributable to themselves than to others, and the size of these biases was not significantly affected by varying whether participants were asked to compare themselves to the average student or to compare the average student to themselves. Hoorens (1995)

raises an interesting possible explanation for the asymmetry between negative and positive domains. If the self functions as a habitual reference point, then instructing people to compare the average other to the self is “as it should be.” If, however, people are asked to compare the self to the average other, then the self’s position as reference point on that dimension is questioned, potentially challenging the self’s status on that dimension. This threat to the self may prompt compensatory self-bolstering, which exacerbates the self-favoring bias. The fact that direction of comparison effects were found in positive domains and not negative ones fits nicely with Hoorens’ speculation: There is no self threat involved in questioning the self’s status as referent for *negative* outcomes or traits, and thus no need to boost self superiority. In fact, other work suggests that the self’s habitual referent status may be limited to nonnegative domains (de la Haye & Penvern, 2002) assuming the usual self-protective biases are working. For most people, the self does not readily come to mind when considering standards for “jealousy” or “slothfulness.”

What if the trait on which a self-other comparison is made is neutral, a quality people neither aspire to nor avoid? Hodges, Bruininks, and Ivy (2002) examined this question, using religiousness as the comparative dimension. This trait was rated as neither positive nor negative by the college student population used in this study. Hodges et al.’s work also demonstrates how feature matching effects operate when people make comparisons with individuated others rather than “average” others (see Alicke et al., 1995, for the importance of this distinction). In Study 1, participants first completed a checklist of religious behaviors (taken from Biernat, Manis, & Kobrynowicz, 1997) in a pretesting session. The scale included items such as “Prayed before or after meals” or “Refused to date a person of a different religion.” Using a participant’s own responses, an individuated comparison other was idiographically constructed for each participant. This comparison other always reported doing the same number of religious behaviors as the participant, and the behaviors the comparison other reported doing were matched on importance to those reported by the participant (whether these behaviors were the *same* behaviors or the *same number of equally important but different* behaviors was also varied, a variable that will be discussed in more depth in the section on cancellation effects).

Participants were told that the idiographically constructed comparison other was a previous participant in the study. Direction of comparison in Study 1 was manipulated with explicit instructions: Participants were told either to compare themselves to the comparison other in terms of religiousness, or to compare the comparison other to themselves. Results revealed an overall main effect of self versus other: The other was seen as more religious than the self. However, this main effect was modified by a direction of comparison effect. The self was seen as relatively more religious when the self was compared to the other, whereas the other was seen as relatively more religious when the other was compared to self. This effect was visible whether the ratings of the self were made on separate scales (e.g., assigning the self and other some score on a scale from 1 to 7, where 7 was

“very religious”), or the ratings were made on a scale measuring the relative standing of the self and other (anchored at one end with “self is much more religious” and at the other end with “other is much more religious”).

Like Catrambone et al.’s (1996) work, Hodges, Bruininks, and Ivy’s (2002) second study provided results that were consistent with the idea that the self functions as the habitual referent in the absence of explicit instructions. When direction of comparison was manipulated in Study 2 by changing the order in which participants saw the religious behavior checklists (e.g., either self checklist last or the other’s checklist last) instead of providing explicit verbal instructions (as in Study 1), the order manipulation had no effect. Apparently, the more subtle order manipulation was not strong enough to dislodge the self from its spot as habitual referent. This left the comparison other as the target of comparison, regardless of order of presentation. With the self as referent and the other person as target of the comparison, disproportionate attention was given to the religious behaviors of the comparison other, resulting in higher ratings of religiousness for the other than for the self.

DIRECTION OF COMPARISON EFFECTS IN SELF-OTHER COMPARISONS—SUMMARY AND FUTURE QUESTIONS

Direction of comparison effects appear to occur in self-other similarity judgments and in self-other comparative judgments in much the same way as they do for nonsocial comparisons, particularly comparisons for which there is asymmetric accessibility of knowledge about the two items being compared (often the case with the self and other). Direction of comparison makes a difference for self-other global similarity judgments, for similarity judgments on specific dimensions, and for comparative judgments on specific dimensions. The effects can occur whether the other is an “average other” or an individuated other. When self-other direction of comparison effects are not found, the cause can generally be traced back to the special nature of the self: When left to their own devices and in the absence of strong contextual cues that some other person should serve as the referent, people have a tendency to use the self as a default referent. In some cases, only powerful explicit instructions can reverse the direction of comparison. Furthermore, even with explicit linguistic instructions providing the direction of comparison, in the absence of either self priming or when self-favoring biases resist attempts to frame the self as a negative referent, direction of comparison effects in self-other comparisons may fail to appear.

Future interesting avenues of exploration might examine whether other variables that have been found to moderate direction of comparison effects could be applied to self-other comparisons. For example, Sanbonmatsu et al. (1991) found that when people were asked to form global evaluations of items in a preference judgment, direction of comparison effects were reduced. Contexts where global or summary evaluations of the self or other are available for the dimension on

which the comparison is being made should thus result in the reduction of direction of comparison effects. Future research should also address *which* direction of comparison people naturally choose (i.e., other to self, or self to other) in various comparison contexts: How do people decide between casting themselves as either the referent or the target of comparison, and do these choices reflect possible self-protection strategies or individual differences in self perceptions?

CANCELLATION EFFECTS

Direction of comparison effects are one of the hallmarks of feature matching, and as previously discussed, they are common to both similarity and comparative judgments. However, the other “signature” pattern of feature matching, cancellation, emerges only in comparative judgments. After first defining these cancellation effects, we will next see how they operate in the judgment context where they were first identified—preference judgments—before considering the question of whether they also occur in self and other comparisons.

Tversky’s (1977) model posited that when making similarity judgments, the number of shared features provided an initial estimate of the similarity between two items. However, shared features are useless in distinguishing between options in a comparative judgment: If I am trying to decide between a resort in the mountains and a resort at the seaside, and both locations offer excellent restaurants and stunning views, focusing on the views and restaurants will not facilitate my decision. It seems that I could safely ignore these shared features altogether in making my decision. And in fact, there is evidence that people do indeed “toss” these shared features—or at least cancel them out—possibly as a way of clearing away some more room on their mental “workbench” which can then be devoted to consideration of the unique features that *do* distinguish between the two options (Hodges, 1997). In Medin et al.’s (1995) terms, the shared features get “backgrounded,” in the sense that they cease being “figure” and start being “ground.” This might be an efficient strategy when choosing one option or the other (i.e., making a *relative* judgment), but cancellation effects appear to carry over to *absolute* evaluations of individual items as well. Whereas direction of comparison effects describe the asymmetrical focus on features that are unique to the target of comparison and are reflected in judgments of how the target is seen relative to the referent, cancellation effects describe what people do with the features shared by both items in the comparison, and how this treatment affects absolute judgments of both items.

What are the consequences of cancellation? Canceling out shared positive features can make the choice between two objectively good options feel like a no-win situation. Hodges (1997) asked college students to imagine that they were looking for a place to live. The students were first shown descriptions of two possible apartments. In the shared features condition, these two apartments shared positive features (e.g., they had big windows and laundry facilities on the premises), but had unique negative features (one of them had ants and torn

screens; the other was drafty and had no deadbolt locks). When rated in isolation,² these apartments were seen as roughly equal and as more positive than negative. However, when participants evaluated these two apartments that shared positive features, the shared features did not distinguish between the two apartments and participants appeared to “cancel” them out. With the shared positive features out of the picture, and just the unique negative features to focus on, participants’ ratings of the two apartments were downgraded. A choice that had initially been between two slightly positive apartments instead got framed as the choice between two apartments defined mainly by their unique bad features.

Furthermore, this cancellation of shared positive features appeared to carry over to subsequent evaluations. Participants in the shared condition were later shown a third apartment that had all unique features, but that was mediocre overall due to the fact that its positive features were less positive (e.g., “separate dining room”) and its negative features were more negative (e.g., “nosy neighbors”) than those in the shared features apartments. Participants rated the mediocre apartment more positively when it was seen after the two shared features apartments had been “impoverished” by the cancellation of their shared positive features. People who viewed the earlier round of choice between the two shared positive/unique negative features apartments appeared to be defining the choice as one between the lesser of two evils. Contrasted against this dreary backdrop, the mediocre (but all unique) newcomer got a boost.

Other researchers have found a variety of ways to demonstrate the cancellation of shared features. For example, Houston et al. (1991) found that people deciding between options with shared positive features and unique negative features took longer to make the decisions and changed their minds more often before arriving at a final choice than people deciding between options that had shared negative features and unique positive features. Because people choosing between unique negative pairs had cancelled out the shared positive features, the decision seemed like a no-win situation that was going to result in ending up with a bad option regardless, and thus the participants were in no hurry to commit. On the other hand, when participants viewed options with shared negative features and unique positive features, the shared negative features cancelled out and the decision became an approach-approach conflict: Without the negative features, participants were eager to select one of the options that were now defined only by their unique positive features.

This perception that the decision was between “good” pairs or “bad” pairs was all the result of feature matching: As mentioned previously, all the options presented in the Houston et al. (1991) study, regardless of condition, had been created so that if seen in isolation, they were rated quite similarly. Thus, participants in the unique negative/shared positive features condition were not actually getting a substandard pair of options; it only seemed that way to them because they had cancelled out the shared positive features.

Dhar and Sherman (1995) demonstrated another effect of cancellation by giving people the option of choosing “none of the above.” They gave participants

a choice between two options that had either shared positive features and unique negative features, or shared negative features and unique positive features. However, participants were also informed that they had a third choice as well: To opt out and pick neither of the options. When choosing between shared positive/unique negative options, more people “opted out,” as compared to people who were choosing between shared negative/unique positive options. In the former condition, canceling out the shared features and leaving just the unique negatives made “nothing” look better than “something” to many of the participants.

It is important to note that these shared features may be gone but not forgotten. Their influence may get cancelled out in terms of determining people’s judgments, but when people are later asked to recall the features of the options they saw, shared features tend to be recalled at a greater rate than unique ones, probably because shared features are encountered twice as often (Hodges, 1997; Hodges & Hollenstein, 2001; Houston et al., 1989). Furthermore, if people recall one of the shared features for one of the options, there is a good chance they will recall that same shared feature for the other option too, suggesting that the shared features have been processed together (Hodges, 1997).

CANCELLATION EFFECTS IN SELF-OTHER COMPARISONS?

The cancellation effects of feature matching have received less attention than direction of comparison effects (perhaps because they are a bit more elusive; see Hodges & Hollenstein, 2001), and studies exploring cancellation in self-other comparisons are particularly rare. However, the Hodges, Bruininks, and Ivy (2002) paper that examined comparisons of religiousness suggests that there may be an interesting self-other asymmetry when it comes to cancellation of shared features. Remember, the participants in this study were given a checklist of religious behaviors customized by the researchers, supposedly completed by another research participant, who served as the comparison other. Sometimes this comparison other reported performing basically the *same* behaviors as the participant, but sometimes this comparison other reported performing a different set of equally important religious behaviors.³ When participants saw a comparison other who had performed many of the same religious behaviors as the self, cancellation was clear in the ratings of the comparison other: Religiousness ratings of the other person dropped, relative to ratings given to a comparison other who did not perform overlapping behaviors (see Figure 7.1). However, ratings of the self showed no cancellation effects. In fact, Hodges et al.’s (2002) Study 1 showed that the self was actually rated as *more* religious when the self and other performed the same religious behaviors, relative to ratings of the self when the self and other performed equal numbers of equally important, but different, religious behaviors. Shared features appeared to be cancelled out for the comparison other (regardless of direction of comparison). That is, even though relative differences between the ratings of self and other revealed the effects of explicit direction of comparison instructions in Study 1, the

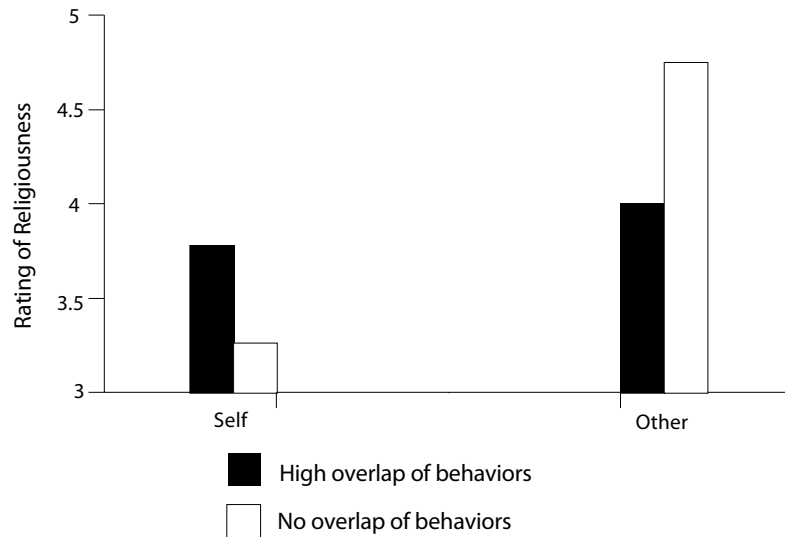


FIGURE 7.1 Cancellation results from Hodges, Bruininks, and Ivy, 2002.

effects of cancellation were evident in the form of lower religiousness ratings for the comparison other.

Thus, shared features were cancelled out when making judgments of others, but not when making judgments of the self. One possibility is that the self-other asymmetry in cancellation is another example of self-favoring bias: By canceling out the shared features for the others, but not the self, participants were stacking the deck in such a way to make the self appear more religious. Such a strategy would certainly make sense if the comparison was being made on a dimension that was clearly positive (e.g., intelligence or social skill). However, it is less clear that participants in the Hodges, Bruininks, and Ivy (2002) study would want self-superiority in terms of religiousness. A separate sample of research participants ($N = 310$; Hodges, 2004), similar to those that participated in the initial study, viewed religiousness as a generally neutral trait (or perhaps had little opinion about it at all). When asked whether saying someone was religious was a positive thing on a 5-point scale, where 5 was “very positive” and 1 was “very negative,” participants’ mean response was 3.41, and the modal response was clearly the midpoint (3.0) of the scale. Furthermore, people with higher self-esteem in the Hodges et al. (2002) study rated everyone (both self and other) lower on religiousness. Thus, it is hard to make a strong case that the asymmetry in cancellation seen in the Hodges et al. (2002) was self-favoring, although it might serve that purpose in other contexts.

Would the self-other asymmetry in cancellation hold for unambiguously positive or negative traits? Trait valence may moderate the effect. In the interest

of self-serving goals, the tendency to cancel for the other person and not the self might be increased when the characteristics in question were positive: If Fiona and Seth are both on the dean's list and both have perfect scores on the SAT, then Fiona can still see herself as smarter if she cancels out these shared features for Seth, but not for herself. On the other hand, self-serving goals would predict that the asymmetry found in the Hodges, Bruininks, and Ivy's (2002) study would be reduced or possibly even reversed when the shared features were negative. For example, people may cancel out their pack-a-day smoking habit and high cholesterol diet that they share with others when assessing their risk of heart attack. Under these circumstances, the asymmetry in cancellation might flip-flop, with people canceling out shared negative features for themselves, but not for the other person.

Past studies outside the realm of self-other comparisons suggest another possibility. At least one published study of preference judgments (Hodges, 1998) and several unpublished ones suggest greater cancellation effects for shared positive features than shared negative features, perhaps due to the greater vigilance accorded negative information (Pratto & John, 1991). Thus, the asymmetry in self-other cancellation might disappear when shared features are negative, not for self-serving reasons, but because negative features, of the self or other, command more attention.

Finally, it must be kept in mind that cognitive processing concerns as well as motivational ones may moderate cancellation effects in self-other comparisons. Although matching up features and canceling them requires cognitive work, the matching appears to be an essential part of comparison (Gentner & Markman, 1994), and the cancellation may ultimately make the process of comparison clearer, especially when a lot of information needs to be integrated. Matching up shared features and setting them aside helps organize the features used in making judgments. However, when making judgments about the self, other organizational schemas may be available.

Indirect evidence that cancellation is the result of using the self as a means for processing information about the other comes from a particular group of subjects in the Hodges, Bruininks, and Ivy (2002) study who showed less evidence of cancellation. In Study 2, participants completed a measure of "religious schematicity," i.e., questions about how important being religious was to them and how much time they spent engaged in religious activities. Participants who scored high on a measure of religious schematicity—and thus might be thought of as "experts" in making judgments in this domain—were less affected by degree of overlap between the self and other. In other words, they did not cancel for the other *or* the self, suggesting that perhaps they were using some referent other than the self—perhaps a stored standard—to process the features of the other. This pattern is analogous to the difference between regular people who dine out and a restaurant critic. The restaurant critic's ratings of a particular restaurant are not relative to the last restaurant she ate at, but instead reflect a comparison to a set of learned criteria, that the critic, as an expert, can bring to mind.

Further evidence that the religious schematics processed the information differently comes from recall data in the Hodges, Bruininks, and Ivy (2002) Study 2. There was a general tendency for participants to recall more of the comparison other's religious behaviors in the high overlap condition than in the low overlap condition, which is consistent both with work demonstrating a memory advantage for self-referenced information, and with past feature matching studies showing a memory advantage for shared features (e.g., Hodges 1997; Hodges & Hollenstein, 2001; Houston et al., 1989). However, this memory advantage was much greater for low schematics than high schematics.⁴ Again, this suggests that the high schematics may use some framework other than the self for processing the features of the comparison other.

SELF-OTHER COMPARISONS IN THE REAL WORLD AND CONCLUDING COMMENTS

The studies reviewed in this chapter—both those for self-other comparisons and other kinds of comparisons—place participants in a context where comparison is the central task at hand and there is little to distract research participants from doing their job. However, much of the everyday social comparison that people engage in occurs in the context of ongoing social interactions, which may distract or even override feature matching strategies. For example, imagine meeting your boyfriend's ex at a social gathering where you have to make small talk while simultaneously attempting to figure out why he quit dating her and now dates you instead. Or, imagine working on a group project, while at the same time assessing whether you or another team member would be better at making the final oral presentation.

Very few studies of social comparison have been conducted in the context of an actual social interaction, but at least one showed virtually no evidence that people processed the features that were available to them in ways predicted by feature matching models (Hodges, Johnsen, & Scott, 2002). Instead, in this study, conversational concerns (such as finding common ground) appeared to play a big role in people's judgments of themselves and the other person. Furthermore, in most research studies of social comparison, the comparison other is someone with whom research participants were previously unacquainted. However, outside the lab, many social comparisons involve known others, and people may rely on stored evaluations or summary judgments of themselves and these other people, perhaps adjusting or updating these judgments to incorporate new information but rarely returning to the "raw data." Add biased informational processing and motivational concerns, and the sum result is that "real" self-other comparisons are a great deal more complex than the comparisons that have been studied in past feature matching studies. However, as this chapter has attempted to demonstrate, there is still a lot to be learned by aligning self-other comparisons with their nonsocial counterparts.

ACKNOWLEDGMENTS

The author would like to thank Holly Arrow, Stephan Dickert, Andy Kohlen, Brian Ooi, and Josephine Casey Witte for comments on an earlier draft of this chapter.

NOTES

1. Tversky's (1977) original terminology referred to "subjects" of comparison. However, this term has proved confusing, both because the subject of comparison is often not the grammatical subject of the comparative question being asked, and because of the fact that psychologists often refer to research participants as "subjects." Thus, "target" of comparison will be used throughout this paper, which has the additional benefit of connoting something that can vary in distance (and similarity) from the referent, or "home" reference point.
2. Of course, even when rating one item in isolation, people still might compare it to some implicit referent in this case, an ideal apartment or one's current living quarters.
3. According to pilot testing of the behaviors.
4. This result was not reported in the Hodges, Bruininks, and Ivy (2002) paper.

REFERENCES

- Agostinelli, G., Sherman, S. J., Fazio, R. H., & Hearst, E. S. (1986). Detecting and identifying change: Additions versus deletions. *Journal of Experimental Psychology: Human Perception and Performance*, *12*, 445–454.
- Aguilar, C. M., & Medin, D. L. (1999). Asymmetries of comparison. *Psychonomic Bulletin and Review*, *6*, 328–337.
- Alicke, M. D., Klotz, M. L., Breitenbecher, D. L., Yurak, T. J., & Vredenburg, D. S. (1995). Personal contact, individuation, and the better-than-average effect. *Journal of Personality and Social Psychology*, *68*, 804–825.
- Andersen, S. M., Glassman, N. S., Chen, S., & Cole, S. W. (1995). Transference in social perception: The role of chronic accessibility in significant-other representations. *Journal of Personality and Social Psychology*, *69*, 41–57.
- Beike, D. R., & Sherman, S. J. (1998). Framing of comparisons in research and practice. *Applied and Preventive Psychology*, *7*, 161–180.
- Biernat, M., Manis, M., & Kobrynowicz, D. (1997). Simultaneous assimilation and contrast effects in judgments of self and others. *Journal of Personality and Social Psychology*, *73*, 254–269.
- Bowdle, B. E., & Medin, D. L. (in press). Reference point reasoning in similarity and difference comparisons. *Journal of Experimental Psychology: General*.
- Bruine de Bruin, W., & Keren, G. (2003). Order effects in sequentially judged options due to the direction of comparison. *Organizational Behavior and Human Decision Processes*, *92*, 91–101.
- Catrambone, R., Beike, D., & Niedenthal, P. (1996). Is the self-concept a habitual referent in judgments of similarity? *Psychological Science*, *7*, 158–163.
- Clement, R. W., & Krueger, J. (2000). The primacy of self-referent information in perceptions of social consensus. *British Journal of Social Psychology*, *39*, 279–299.
- de la Haye, A. M., & Penvern, S. (2002). On the special function of the self-concept in judgements of similarity between persons. *Swiss Journal of Psychology*, *61*, 59–72.
- Dhar, R., & Sherman, S. J. (1996). The effect of common and unique features in consumer choice. *Journal of Consumer Research*, *23*, 193–203.
- Dunning, D., & Hayes, A. F. (1996). Evidence for egocentric comparison in social judgment. *Journal of Personality and Social Psychology*, *71*, 213–229.

- Gentner, D., & Markman, A. B. (1994). Structural alignment in comparison: No difference without similarity. *Psychological Science*, *5*, 152–158.
- Gentner, D., & Markman, A. B. (1997). Structure mapping in analogy and similarity. *American Psychologist*, *52*, 45–56.
- Gilovich, T., & Savitsky, K. (1999). The spotlight effect and the illusion of transparency: Egocentric assessments of how we are seen by others. *Current Directions in Psychological Science*, *8*, 165–168.
- Hodges, S. D. (1997). When matching up features messes up decisions: The role of feature matching in successive choices. *Journal of Personality and Social Psychology*, *72*, 1310–1321.
- Hodges, S. D. (1998). Reasons for the referent: Reducing direction of comparison effects. *Social Cognition*, *16*, 367–390.
- Hodges, S. D. (2004). Unpublished data. University of Oregon.
- Hodges, S. D., Bruininks, P., & Ivy, L. (2002). It's different when I do it: Feature matching in self-other comparisons. *Personality and Social Psychology Bulletin*, *28*, 40–53.
- Hodges, S. D., & Hollenstein, T. (2001). Direction of comparison in typicality judgments. *Social Cognition*, *19*, 601–624.
- Hodges, S. D., Johnsen, A. T., & Scott, N. S. (2002). You're like me, no matter what you say. *Psychologica Belgica*, *42*, 107–112.
- Holyoak, K. J., & Gordon, P. C. (1983). Social reference points. *Journal of Personality and Social Psychology*, *44*, 881–887.
- Hoorens, V. (1995). Self-favoring biases, self-presentation, and the self-other asymmetry in social comparison. *Journal of Personality*, *63*, 793–817.
- Houston, D. A., & Sherman, S. J. (1995). Cancellation and focus: The role of shared and unique features in the choice process. *Journal of Experimental Social Psychology*, *31*, 357–378.
- Houston, D. A., Sherman, S. J., & Baker, S. M. (1989). The influence of unique features and direction of comparison on preferences. *Journal of Experimental Social Psychology*, *25*, 121–141.
- Houston, D. A., Sherman, S. J., & Baker, S. M. (1991). Feature matching, unique features and the dynamics of the choice process: Predecision conflict and postdecision satisfaction. *Journal of Experimental Social Psychology*, *27*, 411–430.
- Karylowski, J. L. (1989). Trait prototypicality and the asymmetry effect in self-other similarity judgments. *Journal of Social Behavior and Personality*, *4*, 581–586.
- Karylowski, J. L. (1990). Social reference points and accessibility of trait-related information in self-other similarity judgments. *Journal of Personality and Social Psychology*, *58*, 975–983.
- Karylowski, J. L., & Skarzynska, K. (1992). Asymmetric self-other similarity judgments depend on priming of self-knowledge. *Social Cognition*, *10*, 235–254.
- Krueger, J. (2000). The projective perception of the social world: A building block of social comparison processes. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 323–351). New York: Kluwer Academic.
- Markman, A. B., & Gentner, D. (1996). Commonalities and differences in similarity comparisons. *Memory and Cognition*, *24*, 235–249.
- Marks, G., & Miller, N. (1987). Ten years of research on the false-consensus effect: An empirical and theoretical review. *Psychological Bulletin*, *102*, 72–90.
- Medin, D. L., Goldstone, R. L., & Gentner, D. (1993). Respects for similarity. *Psychological Review*, *100*, 254–278.
- Medin, D. L., Goldstone, R. L., & Markman, A. B. (1995). Comparison and choice: Relations between similarity processes and decision processes. *Psychonomic Bulletin and Review*, *2*, 1–19.
- Mussweiler, T. (2001). Focus of comparison as a determinant of assimilation versus contrast in social comparison. *Personality and Social Psychology Bulletin*, *27*, 38–47.
- Nickerson, R. S. (1999). How we know—and sometimes misjudge—what others know: Imputing one's own knowledge to others. *Psychological Bulletin*, *125*, 737–759.
- Polk, T. A., Behensky, C., & Gonzalez, R., & Smith, E. E. (2002). Rating the similarity of simple perceptual stimuli: Asymmetries induced by manipulating exposure frequency. *Cognition*, *82*, B75–B88.
- Pratto, F., & John, O. P. (1991). Automatic vigilance: The attention-grabbing power of negative social information. *Journal of Personality and Social Psychology*, *61*, 380–391.

- Rogers, T. B., Kuiper, N. A., & Kirker, W. S. (1977). Self-reference and the encoding of personal information. *Journal of Personality and Social Psychology*, 35, 677–688.
- Sanbonmatsu, D. M., Kardes, F. R., & Gibson, B. D. (1991). The role of attribute knowledge and overall evaluations in comparative judgment. *Organizational Behavior and Human Decisions Processes*, 48, 131–146.
- Srull, T. K., & Gaelick, L. (1983). General principles and individual differences in the self as a habitual reference point: An examination of self-other judgments of similarity. *Social Cognition*, 2, 108–121.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103, 193–210.
- Tversky, A. (1977). Features of similarity. *Psychological Review*, 84, 327–352.
- Tversky, A., & Gati, I. (1978). Studies of similarity. In E. Rosch & B. Lloyd (Eds.), *Cognition and categorization* (pp. 81–98). Hillsdale, NJ: Erlbaum.
- Vorauer, J. D. (2001). The other side of the story: Transparency estimation in social interaction. In G. Moskowitz (Ed.), *Cognitive social psychology: The Princeton Symposium on the legacy and future of social cognition* (pp. 261–276). Mahwah, NJ: Erlbaum.
- Wänke, M., Schwarz, N., & Noelle-Neumann, E. (1995). Asking comparative questions: The impact of the direction of comparison. *Public Opinion Quarterly*, 59, 347–372.
- Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, 39, 806–820.
- Zhang, S., & Markman, A. B. (2001). Processing product unique features: Alignability and involvement in preference construction. *Journal of Consumer Psychology*, 11, 13–27.

