# Who Knows What About a Person? The Self–Other Knowledge Asymmetry (SOKA) Model

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This article tests a new model for predicting which aspects of personality are best judged by the self and which are best judged by others. Previous research suggests an asymmetry in the accuracy of personality judgments: Some aspects of personality are known better to the self than others and vice versa. According to the self–other knowledge asymmetry (SOKA) model presented here, the self should be more accurate than others for traits low in observability (e.g., neuroticism), whereas others should be more accurate than the self for traits high in evaluativeness (e.g., intellect). In the present study, 165 participants provided self-ratings and were rated by 4 friends and up to 4 strangers in a round-robin design. Participants then completed a battery of behavioral tests from which criterion measures were derived. Consistent with SOKA model predictions, the self was the best judge of neuroticism-related traits, friends were the best judges of intellect-related traits, and people of all perspectives were equally good at judging extraversion-related traits. The theoretical and practical value of articulating this asymmetry is discussed.

*Keywords:* self-knowledge, accuracy, personality judgment, behavior, peer ratings

> [The observer] sometimes reaches truths about people's character and destiny which they themselves are very far from divining. (Santayana, 1905/1980, p. 154)

Why do others sometimes know things about us that we don't know about ourselves? We are far from perfectly accurate about ourselves, and, as Santayana (1905/1980) observed, outsiders are often at least as good as the self at describing what a person is like (Kolar, Funder, & Colvin, 1996; Vazire & Mehl, 2008). These findings violate the commonsense conviction that nobody knows you better than you do (Pronin, Kruger, Savitsky, & Ross, 2001; Vazire & Mehl, 2008) and challenge philosophical accounts of the privileged position of the self with respect to knowing what a person is like (e.g., Augustine and Descartes). As accurate as self-perceptions can be, the self's position as the "best expert" on what a person is like is on shaky empirical ground. However, the data accumulated to date do not explain why others sometimes know us better than we know ourselves, or in what domains this is likely to occur. The goal of this article is to present a model of self- and other-knowledge that begins to address these issues and to test this model empirically.

It is by now evident that neither perspective—the self or others—is unequivocally the best perspective from which to judge personality. Self-ratings of personality predict behavior and important outcomes to an impressive degree (Funder & Colvin, 1991; Mehl, Gosling, & Pennebaker, 2006; Ozer & Benet-Martínez, 2006; Paunonen & Ashton, 2001; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007), and self-perceptions must undeniably play an important role in any conception of personality (McAdams, 1995). However, the last 2 decades have also seen a wealth of empirical demonstrations of the self's surprisingly limited insight into everything from mental and emotional states (Bargh & Chartrand, 1999; Bargh & Williams, 2006; Wilson, 2002; Wilson & Dunn, 2004; Wilson & Gilbert, 2003; see also Haybron, 2007, for an interesting theoretical argument) to preferences (Eastwick & Finkel, 2008), motives (Schultheiss, Jones, Davis, & Kley, 2008; Schultheiss, Wirth, et al., 2008), and behavior (Epley & Dunning, 2006; Gosling, John, Craik, & Robins, 1998; Robins & John, 1997a; Vazire & Mehl, 2008). Furthermore, an equally compelling empirical case can be made for the validity of informant reports (Fiedler, Oltmanns, & Turkheimer, 2004; Hofstee, 1994; John & Robins, 1994; Kolar et al., 1996; Levesque & Kenny, 1993;

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Oltmanns, Gleason, Klonsky, & Turkheimer, 2005; Vazire, 2006a; Vazire & Mehl, 2008; Wagerman & Funder, 2007).

If we accept that, overall, personality judgments by informants are about as accurate as personality judgments by the self, the next important question is, what does each perspective know? As Oltmanns and Turkheimer (2009) pointed out, little is known about the relative merits of each perspective for predicting different outcomes. The call for more attention to this question is very recent, but the question itself is not new. In 1955, Luft and Ingham proposed the Johari window as a model of the differences between self- and other-perceptions. The Johari window contains four quadrants: (a) aspects of personality known to both the self and others (*arena*), (b) aspects known to the self but not others (*facade*), (c) aspects known to others but not the self (*blind spot*), and (d) aspects unknown to both the self and others (*unknown*).

Unfortunately, little research has been done to understand what aspects of personality fall in each quadrant. This is unfortunate because this question has many practical and theoretical implications. In the field of clinical assessment, clinicians would benefit greatly from understanding "what kinds of traits are more accurately reported by subjects and which by informants" (Klonsky, Oltmanns, & Turkheimer, 2002, p. 308). Such information would also improve the quality of assessment in other applied settings such as organizations. Furthermore, such knowledge would improve the quality of basic research in every area of psychology that uses personality measures (e.g., personality, social, developmental, clinical, industrial–organizational). Finally, this question has important theoretical implications. Identifying what the self knows that others do not know (i.e., the private aspects of personality) can help us understand the impediments to accuracy in the process of interpersonal perception. Similarly, identifying what others know that the self does not know (i.e., the blind spots in self-perception) can help us understand how self-perceptions are formed and when they are distorted, shedding light on the adaptive value of self-knowledge and self-deception.

There is some evidence that the domains of knowledge of the self and others are not symmetrical. A few studies have directly compared the accuracy of self- and other-perceptions of personality (Fiedler et al., 2004; John & Robins, 1994; Kolar et al., 1996; Levesque & Kenny, 1993; Spain, Eaton, & Funder, 2000; Vazire & Mehl, 2008). Although these studies were designed to examine overall levels of accuracy (and all but one found that other-perceptions were at least as accurate as self-perceptions), they also contain evidence of asymmetries in self- and other-accuracy. I review the strongest evidence here.

Kolar et al. (1996) found that self- and other-ratings of personality were both valid predictors of behavior in a laboratory interaction with a stranger, but self-ratings predicted different behaviors (e.g., calmness) than did other-ratings (e.g., humor, likeability, and arrogance). Vazire and Mehl (2008) found that self- and other-ratings also predicted real-life behavior coded from electronically activated recorders (EARs; Mehl, Pennebaker, Crow, Dabbs, & Price, 2001), but again self-ratings predicted different behaviors (e.g., arguing) than did other-ratings (e.g., socializing). Finally, Fiedler et al. (2004) compared the validity of self- and peer-ratings of personality pathology for predicting early discharge among military recruits. Their results show that self-reports of paranoid, borderline, and avoidant personality traits were positively associated with early discharge, whereas peer-reports of antisocial, schizoid, schizotypal, histrionic, and dependent personality traits were positively associated with early discharge.

Although these and other studies all found asymmetries in self- and other-knowledge about personality, none of the authors provided an explanation for these asymmetries. Indeed, no theory exists to predict which perspective will be more accurate in a given domain. The existing research on self–other asymmetries focuses mainly on asymmetries in the process, rather than the outcome, of social perception. For example, much work has been published on self–other asymmetries (sometimes called actor–observer asymmetries) in attributions for behavior (see Malle, 2006, for a review). In addition, researchers have shown that self-representations differ from representations of others in their complexity, richness, distinctiveness, and content (Andersen, 1984; Andersen, Glassman, & Gold, 1998; Andersen & Ross, 1984; Prentice, 1990; Pronin et al., 2001). However, the asymmetry in the accuracy of self- and other-judgments has received little empirical attention.

This gap in the literature is likely due to the heavy emphasis on cognitive process in the person perception literature. For many decades, person perception research focused on the cognitive processes behind interpersonal judgments at the expense of examining the accuracy of those judgments (for a discussion, see Swann, 1984). Research on self–other asymmetries is no exception. In fact, in a special issue of *Motivation and Emotion* titled "Self-Motives and Social-Perception" (2001, Vol. 25, nos. 1 and 2), not one of the nine articles examined the accuracy of self- or social-perceptions.

Accuracy has garnered a great deal of attention in the field of personality psychology (Kenny, 1993). However, almost all of this research has focused on the accuracy of other-perceptions, and none of it has explicitly addressed the asymmetry in self- and other-accuracy. Why have personality and accuracy researchers ignored the question of self–other asymmetries in accuracy? First, the dearth of research directly comparing self- and other-accuracy makes it impossible to identify moderators using a bottom-up approach. There are just too few published studies to look for replicable patterns. Second, the lack of a theoretical model means that the studies that do exist were not designed to test for moderators. In two studies (Kolar et al., 1996; Vazire & Mehl, 2008) the authors conducted moderator analyses but these analyses were done post hoc. Because the traits or behaviors were not selected specifically to test these moderators, it is possible that they did not cover the full spectrum of the dimensions examined. Indeed, Vazire and Mehl (2008) explicitly acknowledged that the moderator analyses were "inconclusive due to the restricted number and range of behavior" (p. 1212, fn. 2). Thus, no study to date has explicitly been designed to identify self–other asymmetries in accuracy. To do this would require an a priori theory about which dimensions should be related to self–other accuracy asymmetries and a study designed to capture both poles of these dimensions. The purpose of the model described in the next section is to provide such a theoretical framework. The predictions are then tested in the study that follows.

## Self–Other Knowledge Asymmetry (SOKA) Model

The aim of the SOKA model is to provide a framework to explain and predict self–other asymmetries in accuracy. What

factors might account for the asymmetry in what the self knows and what others know about a person? One issue is clearly who the "other" is, and this is discussed below (see The Role of Acquaintance section). For the moment, I will use the term *other* to refer to all types of informants (e.g., friends, coworkers, family members) in full recognition that this will require some oversimplification. Many models of social perception refer to two kinds of factors: informational and motivational (Dunning, 2005; Dunning, Heath, & Suls, 2004; Krebs, Denton, & Higgins, 1988; Robins & John, 1997b; Tetlock, 1984). Human perceivers act as both intuitive scientists and intuitive politicians—their judgments are influenced by both "cold" information-processing goals (i.e., understanding and predicting the actor's behavior) and by "hot" motivational goals (i.e., protecting or enhancing their own self-worth). The SOKA model is also built on this distinction: Self-perception should differ from other-perception because of informational differences in perspective (i.e., the salience of overt vs. covert aspects of a person) and motivational significance (i.e., the ego-relevance of the judgment; Andersen et al., 1998). The key distinguishing feature of the present model is that its focus is on the implications of these differences for accuracy.

In focusing on these two types of processes, the SOKA model is informed by the personality research on determinants of interjudge agreement. The majority of the research on self–other and other–other agreement has focused on the role of trait observability and trait evaluativeness (e.g., Funder & Colvin, 1988, 1997; Funder & Dobroth, 1987; John & Robins, 1993; Watson, Hubbard, & Wiese, 2000). Indeed, both John and Robins (1993) and Kenny (1994) proposed these as two of the most important determinants of agreement. Thus, the SOKA model extends this research by bringing this distinction to bear directly on accuracy.

Funder's (1995, 1999) realistic accuracy model provides a useful framework for examining the steps in the personality judgment process that may be affected by informational and motivational constraints. Although the model was developed to account for the accuracy of other-perceptions, it can be used to identify potential points of diversion between self- and other-perception. The model proposes that an accurate judgment is made for a given trait when four steps are achieved: relevant information exists for that trait (relevance), the information is available to the perceiver (availability), the information is noticed by the perceiver (detection), and the information is interpreted correctly (utilization). Because relevance refers to the number of indicators of a trait, this cannot vary across perspectives. Instead, informational differences in the SOKA model are likely to occur at the availability and detection stages, and motivational differences are likely to occur at the detection and utilization stages. I refer to these stages at the appropriate points in my discussion of the model.

## Informational Differences Between Self- and Other-Perception

Self- and other-perception are likely to differ in quantity and type of information available (which will influence the availability stage) and in the salience of that information (which will influence the detection stage). First, many have argued that the self has a major advantage over others because of the sheer quantity of information available to the self (Funder, 1999; Paulhus & Vazire, 2007). Indeed, as Paulhus and Vazire (2007) stated, "the notion that people are the best-qualified witnesses to their own personalities is supported by the indisputable fact that no one else has access to more information" (p. 227).[1] However, the self–other asymmetry in sheer quantity of information is not very useful for the present model because it does not predict an asymmetry in domains of knowledge.

A more interesting asymmetry involves the type of information available to and detected by each perspective. There are two main reasons to suspect that each perspective will have access to different types of information, and that even when the same information is available, the salience of the information will differ across perspectives and thus the information will be detected and weighted differently. First, the two perspectives have asymmetrical access to, and salience of, thoughts and feelings. Second, the two perspectives have different visual perspectives, which restrict the information available and produce a difference in what is salient in the visual field. I consider each of these differences in turn.

The first informational asymmetry is the self's privileged access to thoughts and feelings, which may provide the self with information about personality unavailable to the outside observer (cf. Schwitzgebel, 2008). Research on the social cognition of self- and other-perception shows that people place more weight on their own thoughts and feelings than on their behaviors when forming self-perceptions, and the effect is weaker or reversed when forming perceptions of others (Andersen, 1984; Andersen et al., 1998; Andersen & Ross, 1984). Similarly, Malle and Knobe (1997) found that people more often wonder about and explain their own "internal" behaviors (i.e., thoughts and feelings) than external behaviors, but the reverse is true when people wonder about and explain others' behavior. These results are likely due to the asymmetry in the availability and salience of thoughts and feelings to the self and others. This finding helps explain the finding that observers are not accurate at detecting depression (which is characterized more by patterns of thinking and feeling than by overt behavior) even when a large amount of behavioral evidence is available (Mehl, 2006).

The self's privileged access to thoughts and feelings may increase the accuracy of self-perceptions, particularly when the trait being rated has to do with patterns of thinking or feeling (e.g., neuroticism-related traits, happiness). However, relying on thoughts and feelings may harm the accuracy of self-perceptions when the trait being rated is behavioral in nature. This can happen for two reasons. First, the abundance of information about thoughts and feelings may swamp any information available about overt behavior, leading perceivers to neglect behavioral information. Second, even if perceivers detect their own overt behavior, they may privilege the information they have about their thoughts and feelings (as previous studies have shown they are prone to do; Andersen, 1984). Thus, this informational asymmetry is likely to produce an accuracy asymmetry such that the self will know more than others about internal traits (i.e., traits defined primarily by patterns of thought and feeling) and the reverse will be true for external traits (i.e., traits defined primarily by patterns of behavior). The self also has privileged access to physiological states,

[1] See Vazire (2006a) for a counterargument.

which may further intensify this asymmetry. Like access to thoughts and feelings, access to physiological information may increase the accuracy of self-perception for internal traits (e.g., anxiety) but may impair the self's ability to form accurate perceptions of external traits (e.g., poise).

Another informational asymmetry has to do with the physical perspective of the self and others. Although the self can, in theory, observe most of its own behaviors, it is unlikely to detect many of these behaviors because one's own body is not as salient in one's visual field as it is in others' (Andersen et al., 1998; Malle & Knobe, 1997). In addition, there are some behaviors (e.g., facial expressions) that are simply unavailable to the self visually, due to its physical perspective. This asymmetry is probably implicated in the greater weight placed on observable behavior by others than by the self. Thus, not only does the self have privileged access to thoughts and feelings, but others have a better perspective on observable behavior, thus magnifying the asymmetry described above.

This proposed asymmetry is partially supported by research on the effect of trait observability on agreement.[2] This research shows that trait observability, or visibility, is consistently associated with higher peer–peer and self–peer agreement (Funder, 1980; Funder & Colvin, 1988; Funder & Dobroth, 1987; Hayes & Dunning, 1997; John & Robins, 1993; Paunonen, 1989; Watson et al., 2000). Although this research does not speak directly to accuracy, one common interpretation of these results is that other-perceptions are more accurate for observable traits than for internal traits. Furthermore, an a priori argument can be made that self-perceptions will be more accurate for less observable traits. Specifically, self-perceptions on internal (i.e., less observable) traits are often self-ratifying—the perception itself provides strong evidence of its own accuracy. For example, a person's belief that he or she is anxious (or optimistic, introspective, etc.) is usually taken as strong evidence that he or she is. Internal traits are largely defined by how a person sees him- or herself. Thus, it is reasonable to predict that the self will generally be more accurate about internal traits than external traits.

Based on the evidence just presented, the first postulate of the SOKA model is as follows:

> *P1:* Trait observability is associated with self–other knowledge asymmetry such that others know more than the self about highly observable traits and the self knows more than others about traits low in observability.

This postulate is supported by the large literature on zero-acquaintance judgments of personality, which shows that highly observable traits (e.g., extraversion) are easy to judge even with little information, whereas less observable traits (e.g., neuroticism) are notoriously difficult to judge (Borkenau, Brecke, Möttig, & Paelecke, 2009; Hall, Andrzejewski, Murphy, Mast, & Feinstein, 2008; Vazire & Gosling, 2004; Vazire, Naumann, Rentfrow, & Gosling, 2008). However, others' advantage for observable traits may be relatively small, because the self knows quite a bit about behavior, too. Thus, the self should be much more accurate than others for internal, unobservable traits (though see the discussion on the role of acquaintance, below), and others should be slightly more accurate than the self for external, observable traits.

## Motivational Differences Between Self- and Other-Perception

People's 'motives in judging a target are likely to influence what information they pay attention to (detection) and how they interpret that information (utilization). The main motivational difference between self-perception and other-perception is the degree of ego-involvement. Judges have a lot more at stake when they are also the target than when they are judging someone else (although of course the magnitude of this difference will vary according to who the other is; see the next section).

The notion that people are motivated to protect and enhance their self-view is supported by the vast literature on a variety of self-serving biases (e.g., Greenwald, 1980; Paulhus & John, 1998; Robins & Beer, 2001; Taylor & Brown, 1988). As Dunning (1999) argued, the basic building blocks of social judgment are shaped by people's "needs and desires to think well of themselves" (p. 3). In addition, a number of studies have shown that this self-serving tendency is quite automatic and effortless (Beer & Hughes, in press; Paulhus & Levitt, 1987; Vohs, Baumeister, & Ciarocco, 2005). Together, these literatures suggest that self-perception is a very different process than other-perception due to the unique motives involved in self-perception.

How do self-serving biases influence self-judgments? Dunning and his colleagues have done extensive research on the myriad ways that people distort their self-perceptions. For example, people take advantage of ambiguities in trait definitions by interpreting the meaning of traits in a self-serving way, set thresholds that are optimal for the self, ignore unfavorable comparison information, and choose and create environments in which their positive attributes are emphasized (Dunning, 1993, 1999; Dunning & Cohen, 1992; Dunning, Meyerowitz, & Holzberg, 1989; Dunning, Perie, & Story, 1991; Kruger, 1999).

Of course for the purposes of the SOKA model, it is important to determine whether this positivity bias is unique to the self; is the self more (or differently) biased than others? Research comparing the positivity of self- and other-perceptions suggests that self-perceptions are not always more positive (Vazire, 2006b; Vazire & Mehl, 2008). In fact, when other-perceptions come from close others, they can be even more positive than self-perceptions (Vazire, 2006b). This result suggests that both self and others are strongly influenced by a positivity motive. However, it is possible that these motives operate differently in self-perception than in other-perception. Indeed, I argue here that ego-protective biases distort self-ratings more than they distort other-ratings, and as a consequence trait evaluativeness is more problematic for self-accuracy than for other-accuracy.

I propose that other-perceptions are influenced by a straightforward positivity effect such that when we rate a close other, we start with an accurate impression and inflate our ratings to make them more positive. If everyone does so equally, and has some idea of

[2] Throughout this discussion, and indeed throughout the literature, the term *observability* is defined from a third-person perspective. That is, a trait is considered observable if it is easily detectable by an observer. While this is usually appropriate, it may confuse matters in the SOKA model because what is observable to the self is not the same as what is observable to others. However, for the sake of consistency with the existing literature I continue to use the term observability.

the target's true standing, the ratings will maintain their rank-order validity (e.g., those rated as more intelligent will in fact tend to be more intelligent, even if the absolute level of intelligence is exaggerated for everyone). This effect is similar to what Cronbach (1955) referred to as *elevation*, which does not much disrupt rank-order accuracy.

In contrast, I propose that the ego-protection motive has a much more disruptive effect on the accuracy self-perceptions: When forming self-perceptions on evaluative traits, people do not simply elevate their reality-based perceptions of themselves. Instead, the self's ego-protection motive disrupts people's ability to form a reality-based perception on these traits in the first place. This idea is supported by the findings of Vazire (2006b), which show that self-perceptions of physical attractiveness, a highly evaluative trait, were significantly less accurate than friends' ratings ($r$s = .18 vs. .35). In this study, the accuracy criterion was an aggregate of 12 observers' ratings based on a photograph of the target; thus both the self and others should, in principle, have equally valid information (i.e., both the self and friends know what the target looks like). Importantly, friends' ratings were more accurate than self-ratings despite the fact that friends' ratings ($M = 5.87$, $SD = 1.04$, on a 7-point Likert-type scale) were significantly more positive than self-ratings ($M = 4.81$, $SD = 1.17$, $t[148] = 9.64$, $p < .01$). Thus, it is not the case that other-perceptions are less positive than self-perceptions, but that the bias is less disruptive of accuracy in other-perceptions than in self-perceptions.

In light of this evidence, I propose self-perceptions are more distorted by ego-protection biases than are other-perceptions. If this is the case, trait evaluativeness should be less detrimental to the accuracy of other-ratings than self-ratings. Is there any evidence that other-accuracy is in fact less harmed by positivity bias than is self-accuracy? The only evidence, besides the results from Vazire's (2006b) study described above, is indirect and comes from research on the impact of trait evaluativeness on self–other and other–other agreement. If in fact positivity biases distort self-perceptions more than other-perceptions, we would expect that trait evaluativeness would be associated with greater decreases in self–other agreement than in other–other agreement. This is indeed what John and Robins (1993) found. Across two studies, the average correlation between trait evaluativeness and other–other agreement was –.32, whereas the correlation between trait evaluativeness and self–other agreement was –.53, a significant difference. The authors proposed that their findings

> are consistent with the idea that differences between self- and peer perception may stem, in part, from a differential response to the evaluativeness of the attribute judged. . . . Self-perceptions may become distorted when the trait is affectively charged. (John & Robins, 1993, p. 547)

If this is the case, this differential reaction to trait evaluativeness will likely produce differences in self- and other-accuracy. In other words, "ego involvement may trigger affective and defensive processes that influence our self-perceptions to a greater extent than our perceptions of most others" (John & Robins, 1993, p. 547). On the basis of this evidence, I propose the second postulate of the SOKA model:

> *P2:* Trait evaluativeness is associated with self–other knowledge asymmetry such that others know more than the self about highly evaluative traits, and this asymmetry is reduced or reversed for evaluatively neutral traits.

## The Role of Acquaintance

The predictions of the SOKA model presented so far do not distinguish between different kinds of others. However, a large body of research suggests that not all others are created equal. One dimension that has received a lot of attention in the personality judgment literature and seems particularly relevant for the issue of accuracy is the level of acquaintance between self and other (Colvin & Funder, 1991; Funder & Colvin, 1988; Funder, Kolar, & Blackman, 1995; Letzring, Wells, & Funder, 2006; Paunonen, 1989). Specifically, while observability is likely to be an important moderator of other-accuracy for others who are not well-acquainted with the self (P1), it may be a less important moderator for close others (Paunonen, 1989). Close others (e.g., friends) are likely to have much more information about internal traits (e.g., information about the target's thoughts and feelings) than do strangers. This idea was directly supported in the work of Colvin and Funder (1991), who found that friends' ratings agreed more with targets' self-ratings than did strangers' ratings, but that friends and strangers were equally accurate at predicting behavior. This finding suggests that when acquaintance is high, informants are able to accurately predict both internal and observable traits, whereas when acquaintance is low, informants are able to accurately detect only observable traits. Thus, observability should be a moderator of accuracy only for poorly acquainted others.

The effect of acquaintance on the relationship between trait evaluativeness and other-accuracy is less clear. One could argue that well-acquainted others are more likely than strangers to share some of the ego-protective biases that distort self-ratings, and thus that the self–other asymmetry related to evaluativeness (P2) will be diminished when the other is well-acquainted with the target. Indeed, Hayes and Dunning (1997) claimed that "people tend to provide assessments of their good friends that look as motivationally influenced as do their judgments of self" (p. 675). However, it is likely that the important distinction is not between high and low acquaintance but between high and low emotional investment (John & Robins, 1993). This is consistent with Kenny's (2004) view that acquaintance is relatively unimportant to accuracy except at very low levels, suggesting that other relationship factors may be more important.

In the present study, I did not expect emotional investment to vary greatly between friends and strangers because the friends in this study were not entirely self-selected and were sometimes friends-of-friends (see Discussion for more on this issue). In future studies, the role of emotional investment could be examined by comparing ratings by romantic partners to ratings by equally well-acquainted friends.

In the first empirical test of the SOKA model, I have chosen to limit my examination to one relationship variable, acquaintance level, because it has received the most attention in previous research. In the present study, I test the role of acquaintance by comparing the accuracy of self-, friend-, and stranger-ratings. Specifically, I examine whether acquaintance level moderates the effect of trait observability on self–other asymmetry (P1). The literature reviewed above suggests that low trait observability should be less harmful to accuracy (and thus the self–other asym-

metry on internal traits should be attenuated) for friends compared to strangers.

## Present Study

The purpose of the present study is to test the SOKA model by examining whether trait observability and trait evaluativeness differentially affect self- and other-accuracy. Another aim of this study is to examine the role of acquaintance (friend vs. stranger) in self–other knowledge asymmetries. To do this I compared self-, friend-, and stranger-ratings to a behavioral criterion for seven traits across three domains that vary in observability and evaluativeness. As many have observed, accuracy research—especially accuracy research using a behavioral criterion—is fraught with methodological obstacles (Kruglanski, 1989), such as the difficulty in linking traits to behaviors (Buss & Craik, 1985; Funder, 1999; Furr & Funder, 2007; Vazire, Gosling, Dickey, & Schapiro, 2007), the difficulty in matching the level of specificity of predictor and criterion (Funder, Furr, & Colvin, 2000; Paunonen & Ashton, 2001), the tradeoff between obtaining real-world behaviors that may have limited psychological importance versus psychologically meaningful behaviors elicited in the laboratory that may have limited representativeness (Furr, 2009; Vazire & Mehl, 2008), the need for aggregation (Epstein, 1979, 1983), and the relatively small effect sizes due to the multiple determination of behavior (Ahadi & Diener, 1989). Although these obstacles are surmountable, they should be borne in mind when interpreting the results of such research (Baumeister, Vohs, & Funder, 2007). As Funder (1999) noted, "we ought to be lenient when interpreting correlations between personality judgments and behavioral observations; sometimes I am astonished that not all of them are 0" (p. 110). Thus, the focus in this study is not on absolute levels of validity but on the relative validity of the three perspectives and how trait observability and evaluativeness moderate this pattern.

### Design

The present study compares ratings made by the self and others to behavior collected in a laboratory setting across a range of traits. There are two important distinguishing features of the current research. First, the "other" perspective is represented by both friends' and strangers' ratings. Previous research comparing self- and other-perceptions has traditionally included only one of these two perspectives. Second, the present study is explicitly designed to test the two postulates of the model by examining whether trait observability and trait evaluativeness have differential effects on self- and other-accuracy. This is achieved by comparing the pattern of validities across three domains of personality that vary on these dimensions.

In choosing which personality domains to examine, the goal was to capture aspects of personality at opposite poles of the observability and evaluativeness continua in order to examine the moderating role of these trait characteristics. Thus, on the basis of John and Robins's (1993) findings, the study includes one domain low on both observability and evaluativeness (neuroticism[3]), one domain high on observability but low on evaluativeness (extraversion), and one domain high on evaluativeness but low on observability (openness/intellect). To identify replicable patterns of validity, at least two traits were examined in each domain: anxiety and self-esteem in the neuroticism domain; talkativeness, dominance, and leadership in the extraversion domain; and creativity and intelligence in the openness/intellect domain.

Although it would be useful to include a greater number and breadth of traits in each domain, several methodological considerations precluded this. First, special care was taken to exploit the benefits of aggregation as much as possible within the constraints imposed by participants' attention and goodwill. Thus, composite measures were created from multiple items for both the ratings (independent variables) and criterion measures (dependent variables) whenever possible. Second, an effort was made to match the specificity of the predictor (e.g., self-esteem ratings) and the criterion measure (e.g., negative statements about the self), requiring a separate behavioral criterion measure to be collected for each trait. These two methodological safeguards had the side effect of limiting the study to the examination of a few narrow traits in each domain, which may not capture the entire content of the domain. For example, openness/intellect is clearly more than creativity and intelligence. Thus, the selection of these traits represents a compromise between the demand for breadth and the imperative to obtain reliable measures that are matched in level of specificity. Most importantly, however, the inclusion of at least two traits in each domain enables tests of the replicability of the pattern of findings in each domain.

### Predictions

As mentioned above, the primary goal of this article is to examine whether self- and other-perceptions show patterns of accuracy consistent with the postulates of the SOKA model. In addition to accuracy, I also examine the incremental validity provided by each perspective over the other two perspectives. Looking at both accuracy and incremental validity will provide a better understanding of the strengths and weaknesses of each perspective.

The predictions are listed in Table 1. According to the SOKA model, the self should be more accurate than others for low observability, low evaluativeness traits. Thus, I predicted that the self would be the best judge of neuroticism-related traits. Furthermore, because observability should be a stronger moderator of accuracy at low levels of acquaintance, I predicted that friends would be more accurate than strangers for neuroticism-related traits. In addition, the SOKA model predicts that the self and others should be equally (and highly) accurate for high observability, low evaluativeness traits. Thus I predicted that all three perspectives would be accurate, and equally so, for extraversion-related traits. Finally, the SOKA model predicts that others should

[3] Some people have expressed surprise that neuroticism is low in evaluativeness. In John and Robins's (1993) article, evaluativeness was operationalized as the difference in social desirability between the high and low pole (i.e., between neuroticism and emotional stability). The social desirability ratings were obtained from 100 undergraduates who rated all of the adjectives on Goldberg's (1983, 1992) Big Five measure on a scale from 1 (*extremely undesirable*) through 5 (*neutral*) to 9 (*extremely desirable*). The data suggest that college students do not consider the high-neuroticism adjectives (e.g., "impulsive") to be especially undesirable. This finding suggests that neuroticism is not especially undesirable in a social context, and its toxicity may be restricted to negative intrapsychic consequences.

Table 1
*Predictions From the SOKA Model and Findings*

| Domain and traits | Observability | Evaluativeness | Prediction | Result |
|---|---|---|---|---|
| Neuroticism | | | | |
| Self-esteem | Low | Low | Self-ratings should be more accurate than other-ratings | Supported |
| Anxiety | | | Friend-ratings should be more accurate than stranger-ratings | Partially supported |
| Extraversion | | | | |
| Talkativeness | | | Self- and other-ratings should be equally accurate | Supported |
| Dominance | High | Low | | |
| Leadership | | | | |
| Intellect | | | | |
| Creativity | Low | High | Other-ratings should be more accurate than self-ratings | Partially supported |
| Intelligence | | | Friend-ratings should be more accurate than stranger-ratings | Supported |

*Note*. Observability and evaluativeness categorizations are based on John and Robins's (1993) findings. SOKA = self–other knowledge asymmetry.

be more accurate than the self for high evaluativeness traits. Thus, I predicted that others would be better judges than the self of intellect-related traits. However, because intellect is a low observability domain, I predicted that acquaintanceship should matter such that only friends would be accurate in this domain and strangers would be no more accurate than the self.

## Method

### Participants

A total of 165 undergraduate students (100 female, 65 male) participated in exchange for either course credit or a monetary reward ($10 and a 1 in 10 chance to win $100 more). The participants ranged in age from 18 to 22 ($M = 18.8$, $SD = 1.7$). According to self-reports of ethnicity, 70 participants were Asian or Pacific Islander, 65 were Caucasian, 19 were Hispanic, 9 were African American, 1 was of mixed ethnicity, and 1 did not provide an ethnicity. Participants were asked to sign up in groups of five friends who were all previously acquainted. Some groups included dyads that had not met before, but 97% of the dyads (320 out of 330) were all previously acquainted. On average, participants had known their group members for over 3 years ($M = 3.12$, $SD = 4.29$, $Mdn = 1.08$).

### Procedure

Participants were recruited by posting flyers in dorms, making announcements in introductory psychology classes, and handing out candy and flyers at busy campus intersections. Participants signed up by visiting a website and completing a form, which required five people to sign up together who were previously acquainted friends, were all undergraduate students, and were at least 18 years old. No details about the purpose of the study were given in the advertisements or on the website. Participants signed up their group for a specific 3-hr session. After signing up, participants received an e-mail with directions to the laboratory. Sessions ranged in size from three to five groups (15 to 25 participants), resulting in a total of 165 participants. The predictors and criterion measures for each trait are listed in Table 2 and described in greater detail below.

**Phase I: Self- and friend-ratings.** Upon arriving at the laboratory, each "friend group" was shown to a separate room where an experimenter described the study and administered the consent forms. Participants then completed a battery of measures including round-robin ratings of their group members, including themselves. Group members were seated together at a table, but folders were put up so that they could not see each other's ratings. Ratings were made on a 40-item personality inventory, described below.

**Phase II: Stranger-ratings.** After Phase I, all participants met in the lobby and were rearranged according to a formula so that new groups of previously unacquainted participants were formed. These "stranger groups" ranged in size from three to five participants (depending on the number of friend groups that showed up). Each stranger group was shown to a separate room, seated at a single table, given pizza and soda, and instructed to get to know each other. The instructions given were as follows:

> These 10 minutes are completely unstructured, it's up to you guys how you want to get to know each other. Try to give everyone a chance to talk and try to get to know everyone, but other than that, just do whatever you would normally do when trying to get to know a group of new people.

Participants knew that their interaction would be videotaped. The experimenter then turned on the cameras and left the room. Participants actually interacted for eight minutes. At the end of the interaction, the experimenter returned, turned off the cameras, and participants completed round-robin ratings of their new group members, not including themselves, following the same procedure used in Phase I.

**Phase III: Criterion measures.** After Phase II, participants once again reconvened in the lobby where an algorithm was used to assign them to a third group, the "criterion group." As in Phase II, these groups consisted of previously unacquainted participants and ranged in size from three to five people. Each criterion group was taken to one of five stations. Each station consisted of a different set of tasks lasting 15 min, and the groups rotated among these stations. Here I describe only the tasks relevant to the present analyses.

The speech station was designed after the Trier Social Stress Test (Kirschbaum, Pirke, & Hellhammer, 1993). Upon arriving at

Table 2
*Traits, Predictors, and Criterion Measures*

| Domain and trait | Predictor | Criterion |
|---|---|---|
| Neuroticism | | |
| Self-esteem | Has high self-esteem | Observer-rated negative statements about self in TSST (r) |
| Anxiety | Is anxious, easily upset | Observer- and experimenter-rated anxiety in TSST |
| | Is good at public speaking (r) | |
| Extraversion | | |
| Talkativeness | Is extraverted, enthusiastic | Observer-coded frequency and duration of talking in LGD |
| | Is reserved, quiet (r) | |
| Dominance | Is assertive | Observer-coded number of interruptions in LGD |
| | Tends to dominate group discussions | |
| Leadership | Is a good leader | Observer-rated leadership in LGD |
| Intellect | | |
| Creativity | Is open to new experiences, complex | Brick Creativity Test score |
| | Is conventional, uncreative (r) | |
| | Thinks and associates in unusual ways, has unusual thought processes | |
| Intelligence | Is intelligent | Wonderlic IQ Test score |
| | Has strong math skills | |
| | Has strong verbal skills | |

*Note*. All predictor variables were items rated on a 15-point Likert-type scale. See Method section for details and reliabilities. TSST = Trier Social Stress Test (Kirschbaum, Pirke, & Hellhammer, 1993); LGD = Leaderless Group Discussion (Bass, 1954). (r) indicates that the item was reverse-scored.

the speech station, participants were met by one of two stern-looking experimenters in white lab coats. Participants were asked to wait in a small bare waiting room. Each experimenter then asked one participant to follow her to a very small, narrow room with a video camera on a tripod at one end. The experimenter stood behind the video camera and asked the participant to stand at the other end of the room. The experimenter then explained to the participant that he or she would be giving a 2-min speech about "What I like and don't like about my body," that he or she should continue speaking until the experimenter tells him or her to stop, and that he or she had 10 s to prepare her speech (for full instructions, see Appendix A). Participants then gave a 2-min, videotaped speech during which the experimenter did not smile or laugh. After giving the speech, participants completed some questionnaires and were asked not to tell other participants about the speech task, then returned to the waiting room.

At another station, participants took part in the Leaderless Group Discussion (LGD; Bass, 1954). Upon arriving at this station, participants were met by an experimenter who told participants that they would be participating in a group discussion in which they were required to allocate fictional resources amongst themselves (for full instructions, see Appendix B). The experimenter then turned on the video cameras and left the room while the group members interacted. After 9 min, the experimenter stopped in and gave participants a 1-min warning. After 10 min, the experimenter collected the piece of paper on which participants had been instructed to write their final decision and turned off the video cameras.

At another station, participants completed two timed paper-and-pencil tests. The first was the Wonderlic IQ test (Wonderlic, 1983), a 12-min test of verbal and nonverbal intelligence. The second was the Brick Creativity Test (Friedman & Förster, 2002), in which participants were instructed to list as many uses as they could think of for a brick, avoiding mundane or impossible uses. Participants were given 1 min to complete the brick test.

## Measures

**Personality ratings.** In Phases I and II, participants completed ratings of themselves and their group members on a 40-item personality questionnaire. The items were selected to provide a broad measure of personality and to provide ratings on traits that are related to the criterion measures obtained in Phase III. Thus, the first 10 items consisted of the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003). The remaining 30 items were pulled from a variety of other scales or created specifically for this study. Participants rated each group member (including themselves in Phase I) on the same 15-point Likert-type scale (see Appendix C). Participants wrote the letter corresponding to the group member they were rating above the number they chose for that person and were told not to use the same number twice for a single item (i.e., participants had to give each group member different scores from each other on a given item).

The self-, friend-, and stranger-ratings in the analyses below were derived from this pool of items. For neuroticism, self-esteem ratings were based on the item "Has high self-esteem." Anxiety ratings were based on the aggregate of the items "Is anxious, easily upset" and "Is good at public speaking" (reverse-scored). Alpha reliabilities of this aggregate for self-ratings, friend-ratings, and stranger-ratings were .25, –.17, and –.11, respectively.[4] In the extraversion domain, talkativeness ratings were based on an aggregate of the two TIPI extraversion items ($\alpha$s = .69, .84, and .85), dominance ratings were based on an aggregate of the items "Is assertive" and "Tends to dominate group discussions" ($\alpha$s = .67, .81, and .85), and leadership ratings were based on the item "Is a

[4] Negative intraclass correlations are expected to occur when ratings are made of a fixed resource (Kenny, Mannetti, Pierro, Livi, & Kashy, 2002), as was the case in this study when raters were asked to rank themselves and their group members relative to each other.

good leader." In the openness/intellect domain, creativity ratings were based on the aggregate of the two TIPI openness items and the item "Thinks and associates ideas in unusual ways, has unconventional thought processes" (αs = .53, .56, and .57), and intelligence ratings were based on an aggregate of the items "Is intelligent," "Has strong math skills," and "Has strong verbal skills" (αs = .33, .70, .73).

**Speech codings.** Two coders watched the videos of the speech and made ratings on a 15-point Likert-type scale on a number of dimensions. All codings were ipsatized within coder before being aggregated across coders. The items included "Says negative things about self (e.g., is self-critical; expresses feelings of inadequacy)" (intraclass correlation coefficient [ICC] [2, *k*] = .50), which served as the criterion measure for the self-esteem ratings in the neuroticism domain. Coders also rated participants on the following dimensions: "Good at public speaking" (.78), "Appears anxious/nervous" (.62), "Appears to be relaxed and comfortable" (.66), and "Speaks fluently and expresses ideas well" (.78). After making the ratings, the coders watched the video again and counted the number of nervous mouth movements (.71) and rated how much anxiety was signaled through hand movements and position (.38). The codings on these four items and two behavior counts were aggregated and used as one part of the criterion for anxiety. The other part of the criterion was derived from ratings made by the experimenter who administered the speech. Specifically, the experimenter rated the participant's anxiety on three items immediately after the participant left the room: "How nervous did the participant seem?" "How self-assured did the participant seem?" and "How hard did the participant try (were they engaged in the task)?" The experimenter's ratings on these three items were aggregated, and this score was combined with the aggregate score based on the coders' ratings and codings (described above) to create an anxiety composite. The alpha reliability of this composite was .89. This composite was used as the criterion measure for anxiety in the neuroticism domain.

**LGD codings.** Two coders who did not serve as the speech coders watched the LGD videos and tallied the number of times the participant spoke (ICC [2, *k*] = .92) and used a stopwatch to record the amount of time the participant was speaking (.79). These codings were aggregated and corrected for LGD group size to create the criterion measure for talkativeness in the extraversion domain (ICC [2, *k*] = .82). Next, the observers watched the video again and counted the number of times the participant interrupted someone (.70). This value, corrected for LGD group size, served as the criterion measure for dominance in the extraversion domain. Finally, the observers ranked the group members on leadership ability (.75), which served as the criterion measure for leadership in the extraversion domain.

**Test scores.** Participants' responses on the Brick Creativity Test were compiled, and six judges read each response and rated its creativity on a Likert-type scale from 1 (*unoriginal*) to 15 (*very creative*). The reliability of the coders' scores was ICC (2, *k*) = .69. To obtain a creativity score for each participant, the average aggregate creativity rating of each of their responses was calculated, which served as the criterion measure for creativity in the openness/intellect domain. In addition, the Wonderlic IQ test was scored by computing the total number of items a participant answered correctly, which served as the criterion measure for intelligence in the openness/intellect domain.

# Results

## Descriptive Statistics

The means and standard deviations of the self-, friend-, and stranger-ratings of personality are presented in Table 3. All significance tests were conducted using paired-sample *t* tests. Self-ratings were significantly more positive than friend- or stranger-ratings for leadership and creativity. Self-ratings were also significantly higher than friend- and stranger-ratings for dominance, though it is not clear which pole of this trait is more positive. Friend-ratings were significantly more positive than stranger-ratings on self-esteem, creativity, and intelligence.

The agreement correlations among the three perspectives are presented in the diagonals of the three panels of Table 4. Here, significance tests comparing equivalent values across the three diagonals were conducted using Hotelling's *t* test for significance of differences between dependent correlations with the Williams modification (Kenny, Kashy, & Cook, 2006). Not surprisingly, self-ratings agreed more with friend-ratings than with stranger-ratings overall, and this pattern held for all traits except talkativeness. In addition, strangers agreed more with friends than with the self, particularly on self-esteem, anxiety, and intelligence. Finally, friends agreed more with the self than with strangers, particularly on anxiety and leadership.[5]

## Social Relations Model Analyses

Because all ratings were made in round-robin groups, these data lend themselves nicely to social relations model (SRM; Kenny, 1994) analyses. Table 5 presents the variance partitioning results of the round-robin ratings among the friend groups and stranger groups. Perceiver variance reflects rater differences in how they tend to perceive others. Target variance is a measure of consensus and reflects target differences in how they are perceived by others. Importantly for the purposes of the current study, there was significant target variance in all traits in both groups except anxiety in the stranger-ratings.

In addition to providing estimates of variance partitioning, SRM also allows researchers to calculate individual target, perceiver, and

[5] A few gender differences also emerged. Among self-ratings, men rated themselves significantly higher than did women on intelligence ($M = 10.93$, $SD = 1.80$ vs. $M = 10.23$, $SD = 2.07$; $t = 2.23$, $p < .05$, two-tailed). Among friends' ratings men were rated as less anxious ($M = 6.63$, $SD = 1.59$ vs. $M = 7.17$, $SD = 1.72$; $t = 2.04$, $p < .05$), less talkative ($M = 8.91$, $SD = 2.40$ vs. $M = 9.78$, $SD = 2.33$; $t = 2.02$, $p < .05$), and more intelligent ($M = 10.73$, $SD = 1.58$ vs. $M = 10.00$, $SD = 1.59$; $t = 2.89$, $p < .01$) than women. Among strangers' ratings, men were rated as lower in self-esteem ($M = 8.20$, $SD = 1.93$ vs. $M = 9.18$, $SD = 1.69$; $t = 3.41$, $p < .01$), less talkative ($M = 8.62$, $SD = 2.28$ vs. $M = 9.73$, $SD = 2.38$; $t = 2.98$, $p < .01$), less dominant ($M = 7.48$, $SD = 2.15$ vs. $M = 8.58$, $SD = 2.29$; $t = 3.08$, $p < .01$), and lower on leadership ($M = 7.86$, $SD = 1.99$ vs. $M = 8.66$, $SD = 1.95$; $t = 2.53$, $p < .05$) than women. Among the criterion measures, women scored lower than men on the Wonderlic IQ test ($M = 23.43$, $SD = 5.62$ vs. $M = 25.48$, $SD = 4.63$; $t = 2.55$, $p < .05$).

No gender differences were found in agreement among self, friends, and strangers. With respect to the accuracy analyses, women's self-ratings were slightly more accurate than men's overall ($r = .26$ vs. $r = .17$) though this difference reached statistical significance only for self-esteem ($r = .48$ vs. $r = .09$; $z = 2.66$, $p < .01$). There were no differences in other-accuracy between female and male targets.

Table 3
*Means for Self-, Friend-, and Stranger-Ratings of Personality*

| Domain and trait | Self | | Friends | | Strangers | |
|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Neuroticism | | | | | | |
| Self-esteem | $9.20_{a,b}$ | 3.28 | $9.37_{a}$ | 1.81 | $8.79_{b}$ | 1.84 |
| Anxiety | 7.00 | 2.77 | 6.96 | 1.68 | 6.66 | 1.36 |
| Extraversion | | | | | | |
| Talkativeness | 9.70 | 2.95 | 9.37 | 2.38 | 9.29 | 2.40 |
| Dominance | $8.92_{a}$ | 2.90 | $8.10_{b}$ | 2.14 | $8.14_{b}$ | 2.30 |
| Leadership | $10.19_{a}$ | 2.90 | $8.30_{b}$ | 2.16 | $8.34_{b}$ | 2.00 |
| Intellect | | | | | | |
| Creativity | $10.27_{a}$ | 2.30 | $9.35_{b}$ | 1.47 | $8.67_{c}$ | 1.31 |
| Intelligence | $10.51_{a}$ | 1.99 | $10.29_{a}$ | 1.62 | $9.98_{b}$ | 1.44 |

*Note.* $N = 165$. All ratings were made on a 15-point Likert-type scale. Means in the same row with different subscripts are significantly different from each other (paired-samples *t* test, $p < .05$, two-tailed).

self effects for each participant on each trait. The target effects reflect the friends' or strangers' ratings on a given trait when perceiver variance has been removed and thus are a more precise estimate of how the friends and strangers actually see the target. The self effects are the unique portion of self-ratings that is not accounted for by how the person tends to rate others (perceiver effect) or how he or she is rated by others (target effect). Thus, the self effect captures the rater's unique perception of him- or herself. Participants' unique target effects and self effects can be used instead of raw scores in the accuracy analyses below. For the sake of ease of interpretability, I use the raw scores in the analyses presented below; however, the pattern of results is identical when SRM effects are used as raw data in the accuracy analyses. That is, in no case is there a change in the order of the three perspectives (self, friends, strangers) from most accurate to least accurate. The magnitude of the correlations is roughly the same, though the self-accuracy correlations are slightly weaker in the extraversion domain when SRM effects are used compared to when the raw scores are used.

## Computing Accuracy and Unique Predictive Validity

Accuracy was computed as the raw correlation between each perspective's rating on a trait and the criterion measure for that trait. The results of these analyses are presented in Table 6. Because other-ratings were aggregated across observers, and thus benefited from increased reliability, I also estimated what the magnitude of the correlation would be for a single friend and a single stranger for each trait.[6] To do this, I wrote an algorithm that would randomly select one observer for each target and then ran the correlation with the criterion measure. I repeated this 15 times, converted the 15 correlations using Fisher's *r*-to-*z* formula, averaged the values, and then converted the value back to an *r* (using the inverse of Fisher's formula). I conducted this procedure separately for friends' and strangers' ratings and repeated it for each trait. The accuracy correlations for both the aggregated friends and strangers and single friend and stranger are presented in Table 6, along with the self-accuracy correlations.

In addition to accuracy, I computed the incremental validity that each perspective provided over the other two for each trait. To measure this I entered all three perspectives' ratings simultaneously into a multiple regression and saved the standardized betas for each perspective. These betas, presented in Table 7, represent the unique predictive validity of each perspective, or the incremental validity it provides over the other two. However, once again the friends' and strangers' ratings benefited from increased reliability due to aggregation. Thus, I used the 15 randomly generated single friend- and stranger-ratings for each trait described above and reran the regressions 15 times using these disaggregated ratings. I then averaged the standardized betas from these 15 regressions for each trait. The standardized betas from both sets of regressions (those with aggregated friends' and strangers' ratings and those with single friend- and stranger-ratings) are presented in Table 7.

I next compare these results to the predictions made based on the SOKA model. Recall that all predictions are comparative—that is, that one perspective will be more accurate than one or two others. However, detecting statistically significant differences between correlations or between regression coefficients requires large amounts of statistical power, especially when the effect sizes are attenuated by low reliability. Thus, instead of conducting null-hypothesis significance tests of these differences, I will instead look for evidence of these effects in the replicated pattern of correlations and regression coefficients.[7] If the differences in accuracy across perspectives are substantial and replicate across traits within a domain, I will take that as evidence that the per-

[6] Although disaggregation makes it easier to compare the magnitude of the effect sizes, it should be noted that the increased reliability from aggregation is not merely a statistical artifact. It is a fact of life that you can obtain impressions of a person from multiple peers, but you can ask only one person for a self-rating. Thus, the increased reliability of aggregated peer-ratings is not artificial—in real-life contexts the fact that multiple peers can be turned to for information about a target is a real and important advantage.

[7] As articulated by Judd and McClelland (1989), tests for significant differences in correlations tend to have considerably lower power than tests for significant differences in means. As a consequence, accuracy research has adopted the practice of descriptively interpreting differences in the magnitude of correlations in the same way that other fields descriptively interpret differences between effect sizes (e.g., between experimental studies or conditions).

Table 4
*Agreement Among Self-, Friend-, and Stranger-Ratings of Personality*

| Domain and trait | Self-esteem | Anxiety | Talkativeness | Dominance | Leadership | Creativity | Intelligence |
|---|---|---|---|---|---|---|---|
| | | | Agreement between self (rows) and friends (columns) | | | | |
| Neuroticism | | | | | | | |
| Self-esteem | **.20**$_{a}^{**}$ | .23** | .06 | .06 | .15 | .08 | .04 |
| Anxiety | .18* | **.40**$_{a}^{**}$ | .10 | .10 | .30** | .18* | .14 |
| Extraversion | | | | | | | |
| Talkativeness | .18* | .06 | **.54**** | .29** | .13 | .13 | −.18* |
| Dominance | .17* | .03 | .29** | **.39**$_{a}^{**}$ | .25** | .12 | −.06 |
| Leadership | .18* | .18* | .30** | .27** | **.29**$_{a}^{**}$ | .17* | −.03 |
| Intellect | | | | | | | |
| Creativity | .10 | −.01 | .04 | .18* | .06 | **.30**$_{a}^{**}$ | −.04 |
| Intelligence | .21** | .27** | .03 | .09 | .22** | .01 | **.31**$_{a}^{**}$ |
| | | | Agreement between self (rows) and strangers (columns) | | | | |
| Neuroticism | | | | | | | |
| Self-esteem | **−.06**$_{b}$ | −.09 | .02 | −.02 | −.08 | −.10 | −.12 |
| Anxiety | .07 | **−.02**$_{b}$ | .13 | .13 | .03 | .15 | −.03 |
| Extraversion | | | | | | | |
| Talkativeness | .20** | .15 | **.46**** | .41** | .29** | .20* | −.16* |
| Dominance | .19* | .05 | .30** | **.24**$_{b}^{**}$ | .19* | .21** | −.11 |
| Leadership | .15 | −.05 | .25** | .20* | **.06**$_{b}$ | .16* | −.15 |
| Intellect | | | | | | | |
| Creativity | −.01 | −.04 | .09 | .10 | −.04 | **.11**$_{b}$ | −.11 |
| Intelligence | −.09 | −.11 | −.03 | −.11 | −.14 | −.10 | **−.07**$_{b}$ |
| | | | Agreement between friends (rows) and strangers (columns) | | | | |
| Neuroticism | | | | | | | |
| Self-esteem | **.23**$_{a}^{**}$ | .09 | .13 | .17* | .10 | .05 | .02 |
| Anxiety | .14 | **.15**$_{c}$ | .06 | .15 | −.01 | .14 | .11 |
| Extraversion | | | | | | | |
| Talkativeness | .39** | .14 | **.47**** | .44** | .31** | .27** | .00 |
| Dominance | .21** | .03 | .26** | **.26**$_{a,b}^{**}$ | .15 | .17* | .03 |
| Leadership | .19* | .12 | .13 | .20* | **.09**$_{b}$ | .12 | .11 |
| Intellect | | | | | | | |
| Creativity | .12 | −.03 | .15 | .11 | −.02 | **.19**$_{a,b}^{**}$ | −.09 |
| Intelligence | .02 | .02 | −.08 | −.05 | −.09 | −.02 | **.20**$_{a}^{*}$ |

*Note.* $N = 165$. Correlations in bold are monotrait, heteromethod agreement correlations. Across the three diagonals, correlations with different subscripts for a given trait are significantly different from each other (Hotelling's $t$ test for significance of difference between dependent correlations, $p < .05$, two-tailed).
* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

spectives differ reliably in their amount of knowledge about that trait.

What should count as a "substantial" difference in accuracy? Given that statistical tests of significance cannot be used here due to restricted power, a conservative but reasonable threshold should be set to decide the magnitude of difference that can be considered meaningful when it replicates. A recent meta-analysis showed that the average effect size in social and personality research, when translated into a Pearson's $r$, was .21 ($Mdn = .18$) with a standard deviation (across studies) of .15 (Richard, Bond, & Stokes-Zoota, 2003). The same meta-analysis showed that the average effect size specifically for personality research was also .21, with a standard deviation of .14. On the basis of these figures, I propose that a difference in accuracy correlations or standardized regression coefficients of more than .15 should be considered substantial, as it represents a difference roughly equal to one standard deviation in the distribution of effect sizes in social/personality psychology generally.

## Does the Self Know More Than Others About Neuroticism-Related Traits?

According to my predictions, the self should be the best judge of neuroticism-related traits, because these traits are low in observability (therefore hard for others to judge) and low in evaluativeness (therefore not distorted by self-protective biases). The results presented in Table 6 show that the self was consistently the best judge for self-esteem and anxiety. Further analyses show that the accuracy of self- and friend-ratings of public speaking anxiety is due mainly to the item "Is good at public speaking." When public speaking anxiety is predicted from either or both of the neuroticism items on the TIPI ("Is anxious, easily upset" and "Is calm, emotionally stable"), the accuracy correlations are all nonsignificant. Thus, the validity of the self- and friend-ratings of anxiety appear to be driven by knowledge about public-speaking-specific anxiety, rather than neuroticism in general.

Table 5
*Social Relations Model Relative Variance Partitioning Results*

| Domain and trait | Friend-ratings | | Stranger-ratings | |
|---|---|---|---|---|
| | Perceiver variance | Target variance | Perceiver variance | Target variance |
| Neuroticism | | | | |
| Self-esteem | .20* (.56) | .22* (.58) | .19* (.47) | .24* (.53) |
| Anxiety | .14* (.46) | .26* (.62) | .15 (.37) | .12 (.32) |
| Extraversion | | | | |
| Talkativeness | .00 (.00) | .38* (.70) | .07 (.31) | .49* (.76) |
| Dominance | .15* (.53) | .35* (.72) | .20* (.61) | .44* (.78) |
| Leadership | .23* (.62) | .25* (.64) | .26* (.60) | .24* (.58) |
| Intellect | | | | |
| Creativity | .13* (.43) | .23* (.58) | .12 (.31) | .16* (.39) |
| Intelligence | .17* (.52) | .26* (.63) | .35* (.68) | .21* (.56) |

*Note.* $N = 165$. Reliabilities are presented in parentheses. The perceiver variance estimates can be interpreted as Pearson's *r*s reflecting the typical correlation between one rater's rating of two different targets. The target variance estimates can be interpreted as Pearson's *r*s reflecting the typical level of consensus between two raters when each target is rated by two unique raters (as opposed to when all targets are rated by the same two raters, in which case consensus estimates would be higher).
* $p < .05$, two-tailed.

The results of the multiple regressions show that the self consistently predicted unique variance in anxiety and self-esteem above and beyond the predictive validity of the other two perspectives (see Table 7). For self-esteem, the self was substantially (>.15 difference) more accurate than strangers and slightly more accurate than friends (especially when the friends' ratings were disaggregated) in both the raw correlation analyses and the multiple regression analyses. For anxiety, the self was consistently substantially more accurate than both friends and strangers. Thus, my first hypothesis was largely supported.

## Do Friends Know More Than Strangers About Neuroticism-Related Traits?

According to my predictions, friends should know more than strangers about neuroticism-related traits because the low observability of these traits should be especially problematic at low levels of acquaintance. The results for both self-esteem and anxiety were in the predicted direction but did not reach the .15 threshold (differences between friends' and strangers' accuracy ranged from .12 to .14 in Table 6). Thus, my second hypothesis was only partially supported.

Table 6
*Accuracy of Stranger-, Friend-, and Self-Ratings: Raw Correlations*

| Domain and trait | Self | Friends | | Strangers | |
|---|---|---|---|---|---|
| | | Agg. | Single | Agg. | Single |
| Neuroticism | | | | | |
| Self-esteem | .31** | .29** | .18* | .15† | .07 |
| Anxiety | .35** | .19* | .12 | .06 | .00 |
| Extraversion | | | | | |
| Talkativeness | .20* | .20* | .17* | .26** | .21* |
| Dominance | .18* | .19* | .15† | .22** | .15† |
| Leadership | .13 | .24** | .17* | .21* | .16* |
| Intellect | | | | | |
| Creativity | .11 | .27** | .17* | .11 | .07 |
| Intelligence | .22** | .36** | .27** | .01 | .01 |

*Note.* $N = 165$. "Agg." columns present the results for analyses when the aggregate of all friends or strangers was used. "Single" columns present the average result of 15 repeated analyses in which a single friend or stranger was chosen for each target.
† $p < .10$, two-tailed. * $p < .05$, two-tailed. ** $p < .01$, two-tailed.

## Do All Three Perspectives Know Equal Amounts About Extraversion-Related Traits?

According to my predictions, all three perspectives should be roughly equally accurate about extraversion-related traits because they are high in observability (thus everyone would have the relevant information available) and low in evaluativeness (thus no one would be motivated to distort their perceptions). The results show that all three perspectives achieved accuracy in rating these traits (except the self on leadership), and none of the perspectives was substantially more accurate than the others. Thus, my third hypothesis was supported.

## Do Others Know More Than the Self About Intellect-Related Traits?

According to my predictions, others should know more than the self about intellect-related traits because these traits are high in evaluativeness, thus self-ratings would be distorted by self-protective biases. However, intellect is also a low observability domain, somewhat hampering others' ability to detect relevant information. Nevertheless, the results show that friends were substantially more accurate than the self on creativity and had substantially more unique predictive validity, although the difference is reduced when friends' ratings are disaggregated. For intelligence, friends were slightly more accurate than the self (a difference of .14) and had substantially more unique predictive validity, but again this held only when the friends' ratings were aggregated. Thus, my fourth hypothesis was partially supported.

Table 7
*Unique Predictive Validity of Stranger-, Friend-, and Self-Ratings*

| Domain and trait | Multiple regression standardized betas: Aggregated friends & strangers | | | Multiple regression standardized betas: Single friend & stranger | | |
|---|---|---|---|---|---|---|
| | Self | Friends | Strangers | Self | Friends | Strangers |
| Neuroticism | | | | | | |
| Self-esteem | .28** | .20* | .13 | .29** | .14† | .06 |
| Anxiety | .33** | .05 | .05 | .33** | .03 | .00 |
| Extraversion | | | | | | |
| Talkativeness | .09 | .06 | .19* | .13 | .08 | .13 |
| Dominance | .10 | .11 | .17* | .13 | .08 | .15† |
| Leadership | .07 | .20* | .18* | .10 | .13 | .13 |
| Intellect | | | | | | |
| Creativity | .03 | .24** | .07 | .07 | .14† | .05 |
| Intelligence | .12 | .33** | −.04 | .18* | .22** | .01 |

*Note.* $N = 165$. All three perspectives were entered simultaneously in a multiple regression; therefore, standardized betas reflect the incremental validity of the given perspective over the other two perspectives. "Aggregated" columns present the results for analyses when the aggregate of all friends and strangers was used. "Single" columns present the average result of 15 repeated analyses in which a single friend and stranger were chosen for each target.
† $p < .10$, two-tailed. * $p < .05$, two-tailed. ** $p < .01$, two-tailed.

## Do Friends Know More Than Strangers About Intellect-Related Traits?

According to my predictions, friends should know more than strangers about intellect-related traits because the low observability of these traits would be especially problematic at low levels of acquaintance. As the results show, friends were substantially more accurate, and provided substantially more unique predictive validity, than strangers for both creativity and intelligence (though the difference for creativity was below the .15 threshold when the ratings were disaggregated). Thus, my fifth hypothesis was largely supported.

## Summary

Out of the five predictions derived from the SOKA model, three were strongly or wholly supported by the evidence and two were only partially supported (the differences were in the predicted direction but did not reach the threshold set for practical significance, or held only when other-ratings were aggregated). The design of the study allowed an examination of whether the pattern of results held for multiple traits within a domain, thus bolstering confidence in the results. Finally, the magnitude of the effects, and of the differences among the perspectives, was substantial by the standards of the field, despite the use of single-item and low-reliability measures. In short, the results strongly suggest that the self is indeed the most knowledgeable about low observability, low evaluativeness traits (e.g., neuroticism); friends are the most knowledgeable about low observability, high evaluativeness traits (e.g., intellect), especially when multiple friends are queried; and all perspectives are knowledgeable about high observability, low evaluativeness traits (e.g., extraversion).

# Discussion

The purpose of the study presented here was to provide an initial test of the postulates of the SOKA model proposed above and to examine the role of acquaintance. The results suggest that the SOKA model predictions about the role of trait observability and trait evaluativeness in self–other knowledge asymmetries are correct. Figure 1 presents the results as a function of trait observability and evaluativeness. Consistent with P1 of the SOKA model, other-knowledge was impaired by low trait observability, and this was especially true at low levels of acquaintance. Also consistent with P1 of the SOKA model, self-knowledge was not impaired by low trait observability. If anything, self-knowledge was enhanced by low trait observability: The accuracy correlations obtained for self-ratings of anxiety and self-esteem (low observability traits) were two of the three highest in the entire study. Consistent with P2 of the SOKA model, self-knowledge was impaired by high trait evaluativeness, presumably because of self-protective biases of the sort documented by Dunning and his colleagues (Dunning, 1993, 1999; Dunning & Cohen, 1992; Dunning et al., 1989, 1991; Hayes & Dunning, 1997). This effect is reflected in the low accuracy correlations for self-ratings of creativity and, to a lesser extent, intelligence. It is also revealing that self-ratings were not accurate for leadership, arguably one of the more evaluative facets of extraversion. In contrast, other-knowledge did not seem to be impaired by trait evaluativeness.

The impact of acquaintance was as expected: Low acquaintance impaired accuracy for low observability traits. This effect is reflected in the finding that strangers were less accurate than friends for all four low observability traits (self-esteem, anxiety, creativity, and intelligence) and substantially so in most analyses. This finding is consistent with previous research showing that strangers are rarely accurate at perceiving traits low in observability (Borkenau et al., 2009; Hall et al., 2008; Vazire & Gosling, 2004). Interestingly, one recent study found that when observers are given access to targets' private lives (how they behave with their romantic partners), their ratings of neuroticism are significantly correlated with targets' self-ratings (Slatcher & Vazire, 2009, Study 3).

It is interesting that acquaintance did not seem to influence the effect of evaluativeness on other-accuracy. In other words, high trait evaluativeness (i.e., in the intellect domain) did not prevent friends from providing accurate ratings. In fact, the accuracy correlation obtained for friend-ratings of intelligence was the second highest correlation obtained in the study. This finding suggests

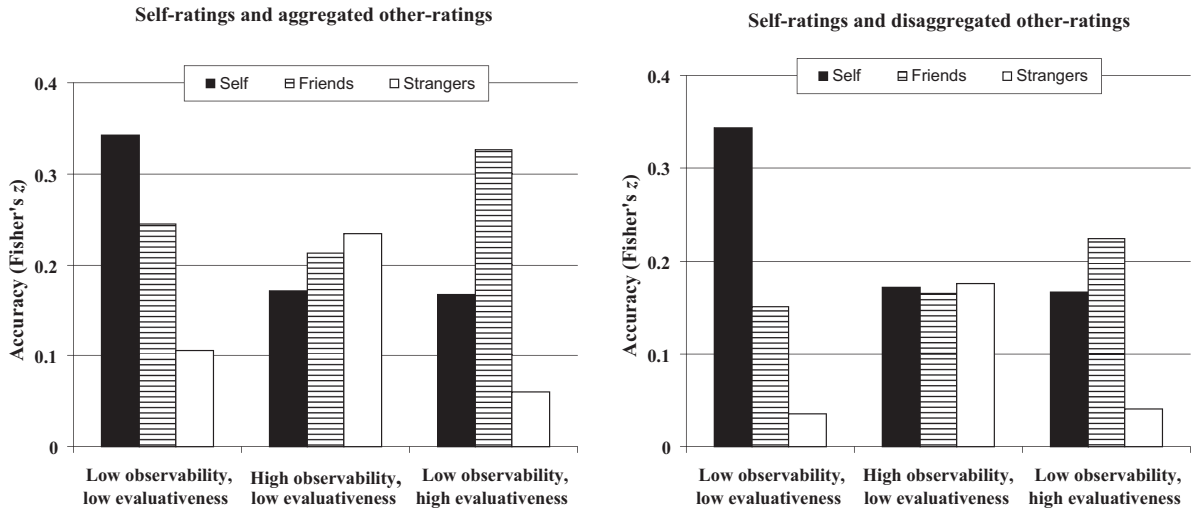


*Figure 1.* Average accuracy correlations (transformed to Fisher's *z* scores for easier comparison) for each perspective in the three different domains. The left panel shows the averages when friend- and stranger-ratings are aggregated; the right panel shows the averages when the friend- and stranger-ratings are disaggregated. The low observability, low evaluativeness domain consists of the traits self-esteem and anxiety. The high observability, low evaluativeness domain consists of the traits talkativeness, dominance, and leadership. The low observability, high evaluativeness domain consists of the traits creativity and intelligence.

that, as discussed above, perhaps level of acquaintance is not a relationship variable that interacts with trait evaluativeness to affect accuracy. Instead, as others have suggested (e.g., Andersen et al., 1998), it is likely that the others' emotional investment in the target may be a more relevant relationship variable. That is, if our targets had also been rated by romantic partners or parents, we may have seen a deterioration in accuracy for high evaluativeness traits (e.g., intelligence, creativity) because these others would have shared some of the self's ego-protective biases.

It is important to note that the friends in this study may have been especially low in emotional investment compared to other studies in which friend-ratings are collected. This is because the participants in this study were required to sign up in groups of five friends who all knew each other, so each participant could not nominate his or her best friends to rate him or her. Instead, many of the ratings came from friends-of-friends or casual acquaintances who may not have been especially emotionally invested in the participant. Given the limitations of self-selected informants, I believe this is a strength of the study, but it does leave the question of the role of emotional investment open for future research.

Finally, it is worth pointing out that the present study adds to the growing literature documenting that self- and informant-reports of personality do indeed predict behavior (e.g., Ozer & Benet-Martínez, 2006; Roberts et al., 2007). Such evidence contributes to resolving the person–situation debate by demonstrating that personality consistency exists and that personality traits do predict behavior (but see Fleeson & Noftle, 2008, for an important discussion of the concept of consistency).

## Limitations

One limitation of the current study is the restricted range of traits examined. Although the traits were selected specifically for their variation in observability and evaluativeness, they likely varied on other dimensions, and the pattern of results obtained may have been due to these overlooked dimensions. The replication across traits within domains helps alleviate this concern somewhat, but this "third variable" problem cannot be ruled out without replicating these findings in more traits and domains and showing that trait observability and evaluativeness consistently predict the pattern of self–other knowledge asymmetry.

Furthermore, the traits examined here clearly did not capture the full breadth of each domain. For example, the analyses for anxiety revealed that the accuracy of self- and friend-ratings on this trait may be specific to public speaking anxiety and may not reflect knowledge about neuroticism levels more generally. Along the same lines, the placement of the traits along the observability and evaluativeness continua was based on results at the domain level provided by John and Robins (1993). An assumption was made that the observability and evaluativeness of the individual traits examined here match the observability and evaluativeness of the domains to which they belong, but there may be important variations within domain. For example, some research suggests that intelligence may be quite easy to observe when the right information is available (Borkenau, Mauer, Reimann, Spinath, & Angleitner, 2004), although the results of the present study suggest it is not easily observable in face-to-face interaction (see also Murphy, 2007).

Readers may also question the categorization of self-esteem and anxiety as nonevaluative traits. Here, a distinction must be made between traits that reflect a person's evaluation of him- or herself (e.g., self-worth) and traits that are socially evaluative (e.g., attractiveness). The evaluativeness dimension applied in the SOKA model refers to the latter type of evaluativeness—the social desirability or undesirability of having (and admitting one has) a

particular trait. Although self-esteem is undeniably evaluative in the self-evaluation sense, it is not necessarily perceived as especially desirable or undesirable in social appraisals. That is, we may like people regardless of their level of self-esteem, and it may not be threatening to admit to oneself that one has low self-esteem. John and Robins's (1993) results suggest this may be true for neuroticism-related traits in general. In further support of this idea, recent research on the general factor of personality suggests that neuroticism has the weakest loading on the overarching positivity factor (Rushton et al., 2009).

Another potential limitation of this study is the possibility that in some cases accuracy was due to methodological overlap between the rating and the criterion. For example, it can be argued that others had an advantage in this design because most of the criterion measures are observer based. However, as Vazire and Mehl (2008) pointed out, there are important differences between other-ratings of personality and observer-ratings or codings of behavior. Clearly, self- and other-ratings are much more similar to each other, methodologically, than either is to a rating of behavior from an observer who is instructed to rate behaviors on the basis of a video clip. Furthermore, to the extent that there is method overlap between other-ratings and the criterion measures, it is not clear that this overlap is any greater than between self-ratings and the criterion measures. One obvious exception is the case of the stranger-ratings of extraversion-related traits and the criterion measures for these traits. The strangers rated each other after an 8-min get-to-know-you group interaction that was videotaped. An hour or two later, participants interacted with a different group of strangers in a 10-min, videotaped leaderless group discussion which served as the basis for the extraversion-related criterion measures. Despite the fact that the participants were with different people and the task had a different purpose, it is likely that there were important similarities between the two situations that may have enhanced the predictive validity of strangers' ratings. That is, strangers' ratings of extraversion may have capitalized on circumscribed accuracy (specific to situation involving group interactions with strangers) as well as global accuracy (Gill & Swann, 2004; Swann, 1984).

Finally, there are the usual limitations on generalizability. As with any research using college student samples in the United States, it is not clear whether these findings would generalize to other age groups or cultures. This concern may be especially relevant for issues of self–other knowledge asymmetry, because the level and content of self-knowledge may vary greatly by age and culture. In addition, self–other knowledge asymmetry may vary greatly across the lifespan and across cultures if age and culture influence interpersonal processes such as self-disclosure and feedback from friends. Indeed, one meta-analysis (Klonsky, Oltmanns, & Turkheimer, 2002) did find that self–informant agreement increases with age, suggesting that self–other knowledge asymmetry may be smaller, and may have different moderators, among older adults than among college students.

## Future Directions

The goal of the SOKA model presented here is to better understand and predict self–other knowledge asymmetries. When is the self the best judge of personality, and when are others better? The two postulates tested here provide a foundation for building this model. The findings suggest that trait observability and evaluativeness moderate self–other differences in accuracy. However, self–other knowledge asymmetry is clearly much more complicated than this. First, there are likely to be boundary conditions on the moderating influence of these variables. As we have already seen, the moderating role of observability is attenuated for well-acquainted others, such that other-knowledge approaches levels of self-knowledge on low observability traits (e.g., self-esteem) if the others are well-acquainted with the target. In addition, I suspect that emotional investment will attenuate the moderating role of evaluativeness such that others will show similar ego-protective biases as the self on high evaluativeness traits (e.g., intelligence) if the others are emotionally invested in their relationship with the target. Thus, future research should continue to examine when trait observability and trait evaluativeness account for self–other knowledge asymmetries and when they do not.

Future research should also seek other potential moderators of self–other knowledge asymmetry. Within the realm of trait moderators, several possibilities jump to mind. First, as Hayes and Dunning (1997) demonstrated, trait ambiguity moderates self–other agreement, so it is likely to also moderate self- and other-accuracy. Of particular interest for the SOKA model is whether trait ambiguity affects self- and other-accuracy similarly or differently.

Another potential moderator is trait automaticity. Traits vary in the degree to which they refer to automatic versus deliberate behaviors, and it is likely that this property of a trait affects self- and other-accuracy differently. In particular, I suspect that self-accuracy is higher for deliberate than automatic traits and that this difference is erased or perhaps even reversed for other-accuracy. Along the same lines, a further avenue for future research is to examine the relationship between self–other knowledge asymmetries and implicit versus explicit personality. Specifically, it would be interesting to examine whether (where self- and other-perceptions differ) other-perceptions are tapping into implicit aspects of personality (Back, Schmukle, & Egloff, 2009; Vazire & Doris, 2009).

Finally, another characteristic of a trait that will likely differentially affect self- and other-accuracy is whether the trait is by definition identity-based or reputational. This dimension likely overlaps greatly with trait observability, but it is conceptually distinct. For a trait to be identity-based means that a person's self-perception on that trait more or less defines his or her standing on the trait. For example, if Neil sees himself as self-conscious, he is, almost by definition, self-conscious, even if others do not see him that way. A reputational trait, on the other hand, is one that is defined by how others see a person. For example, if Eric is seen by his friends as funny, he is, almost by definition, funny, even if he does not see himself that way. Funniness may not be readily observable, but it is nevertheless defined by one's reputation.

It would also be fruitful to look for other types of moderators of self–other asymmetry. Funder's (1995, 1999) realistic accuracy model identifies four types of moderators of accurate personality judgment: characteristics of the trait, characteristics of the judge, characteristics of the target, and characteristics of the context or information on which the judgment is based. The purpose of the SOKA model in its present form is to identify and predict what types of traits are known to the self and to others, but it could easily be expanded to explore judge, target, relationship, and information moderators as well. Indeed, the current study showed compelling evidence for one relationship-related moderator: acquaintance level. However, other relationship variables should also be studied, starting with emo-

tional investment. Recent research in social neuroscience provides encouraging evidence that this variable may moderate self–other knowledge asymmetries. Specifically, Hughes and Beer (2009) have shown that when we are judging the personality of a romantic partner, our pattern of brain activity is more similar to that of self-perception than when we are judging the personality of a roommate (Hughes & Beer, 2009). In addition, future research should examine other moderators of self- and other-accuracy such as cultural, age, and role differences. As Wilson (2009) recently noted, self-knowledge seems to be gaining traction as a phenomenon worthy of empirical study, and this should lead to greater understanding of the influence of such factors on self- and other-accuracy.

## Conclusion

Why do others sometimes know things about us that we don't know about ourselves? Understanding the processes underlying self–other knowledge asymmetries has many implications. First, the similarities and differences between the processes of self-perception and other-perception have been understudied (Kenny & West, 2008), and differences in accuracy will be vital to understanding differences in process. This insight will help us understand fundamental questions about human psychology, such as how people form self-perceptions and which aspects of our own personalities we are most blind to. The process of other-perception is relatively well-studied in comparison, but could still benefit from illumination of the strengths and weaknesses of other-knowledge. Second, understanding and predicting when self-perceptions will be more accurate and when other-perceptions will be more accurate has immense practical value. The ability to determine which is the best source of information about someone's personality could greatly improve the quality of assessment in many fields including clinical, personality, social, and industrial–organizational psychology. Finally, identifying the asymmetrical domains of self- and other-knowledge is a stepping stone for examining the consequences of self-knowledge (and lack thereof) and the implications of increasing self-knowledge. By knowing when, as Santayana (1905/1980) put it, observers reach truths about us that we are very far from divining ourselves, we can take steps to fill in our blind spots and know ourselves better.

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## Appendix A

### Trier Social Stress Test: Instructions From Experimenter

You will be giving a two-minute speech, in front of a video camera and experimenter. The purpose of this exercise is to obtain a measure of your public speaking skills. Public speaking is a very important life skill—research has shown that public speaking skills predict how much success people have in their careers and how good they are at interpersonal relations. Thus, we will ask you to deliver a two-minute speech about a specific topic, and we will be videotaping the speech. Your videotape will be kept completely confidential. However, it will be shown to a team of experimenters who are trained experts at coding public speaking skills. They will evaluate your abilities with respect to public speaking. However, no one outside of the research team will see your video. Do you have any questions?

The topic of this speech is "what I like and don't like about my body." I'll give you a few seconds to collect your thoughts, and then you will be asked to speak continuously for two minutes. I will tell you when the time is up, please do not stop before I tell you to. Remember, this is a measure of your public speaking ability, so try to be as fluent and poised as possible. Ok, I'll give you ten seconds to think about what to say and then I'll say "start."

## Appendix B

### Leaderless Group Discussion: Instructions From Experimenter

At this station you're going to be doing an activity called the Group Discussion. This is an activity that is often used in job interviews so please take this as seriously as you would a job interview. In this activity, you will all be representatives from different departments of the same company. You are all on your organization's Compensation Committee. Five employees have been recommended for a merit bonus by their supervisors. You will each be representing one candidate from your department. While you would like to grant substantial bonuses to all the candidates, the profits of the organization will not permit it. There is only $18,500 in merit bonus funds available. In your packet you will find information about your candidate, and a little bit of information on each of the other candidates. You are under strong pressure from your department to get as much money for this candidate as possible. Your tasks during the committee discussion are to present a strong argument for your candidate and at the same time to help the committee decide the best allocation of the available funds. The committee must reach a written decision in 10 minutes or no one receives a bonus. This is the last meeting of the year. I will now give you a few moments to read over your packet, which contains detailed information about your candidate and a brief overview of the other candidates.

Ok, before we begin, does anyone have any questions? Here is the form you must complete in the next ten minutes. At the beginning of the meeting, each committee member must give a 30-second presentation concerning his or her candidate. You must reach an agreement and write down your agreement on this form before the ten minutes are up. I will give you a warning when you have 1 minute left.

## Appendix C

### Personality Rating Form

For each personality trait below, rate **how well the trait describes each person** in your group (including yourself) by writing their letter above a number along the spectrum from "not at all" to "extremely." Rate each person compared to the average UT student.

For example, if the trait is "extraverted" and you think that Person A is extremely extraverted compared to most UT students, you would write the letter A above the number 14 or 15, then go on to the next trait and continue rating Person A. when you are done with Person A, start over from the beginning and rate the next person. **Rate yourself last.** To show that you have read these instructions, please cross out the last word of this sentence.

Circle a different number for each person (two people cannot be on the same circle) and try to use the entire spectrum whenever appropriate.

(*Appendices continue*)

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Extraverted, enthusiastic | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 2. Critical, quarrelsome | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 3. Dependable, self-disciplined | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 4. Anxious, easily upset | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 5. Open to new experiences, complex | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 6. Reserved, quiet | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 7. Sympathetic, warm | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 8. Disorganized, careless | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 9. Calm, emotionally stable | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 10. Conventional, uncreative | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 11. Happy, satisfied with life | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 12. Intelligent | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 13. Has strong math skills | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 14. Has strong verbal skills | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 15. Physically attractive | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 16. Has an attractive face | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 17. Has an attractive body | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 18. Lonely | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 19. Has high self-esteem | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 20. Is a genuinely dependable and responsible person | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 21. Assertive | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 22. Tends to dominate group discussions | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 23. Impulsive | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 24. Has a strong need to be around others, doesn't like being alone | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 25. Thinks and associates ideas in unusual ways, has unconventional thought processes | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 26. Arrogant, thinks too much of him/herself | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 27. Politically liberal | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 28. Is a good leader | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 29. Good at public speaking | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 30. Likeable | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 31. Depressed | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 32. Exaggerates his/her skills | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 33. Power-oriented, values power in self and others | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 34. Likes to be the center of attention | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 35. Pays attention to detail | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 36. Tends to like others | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 37. Tends to be liked by others | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 38. Honest | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 39. Funny | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |
| 40. Has a strong drive to achieve, is motivated to do well | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Extremely |

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