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You spy with your little eye: People are “blind” to some of the ways in which they are consensually seen by others



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ABSTRACT

In personality research, the term “blind spot” (Luft & Ingham, 1955) denotes personality characteristics that people are not aware of, but that are consensually attributed to them by others. Our investigation revealed evidence for (a) a normative blind-spot (i.e., characterizing the average target) and (b) distinctive blind-spots (i.e., characterizing specific targets). The latter finding implies that the average person is not aware of some of the ways in which he or she is uniquely, but consensually, perceived by other people. The respective effect size is substantial, as compared with other effects in the field of person perception (e.g., consensus). Future research should investigate how people may benefit from the knowledge that others – and only others – have about them.

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1. Introduction

Most people think that they are the ones who know themselves best (Pronin, Kruger, Savtisky, & Ross, 2001; Vazire & Mehl, 2008). After all, only the self is in a position to observe all of a person's behaviors, thoughts, motives, and feelings across all situations (Funder, 1999). However, it is now increasingly acknowledged that people's knowledge of themselves is limited. Often, other people seem to be able to contribute incrementally valid information about a person that the person himself or herself is unable, or unwilling, to provide (e.g., Connelly & Ones, 2010). The present study further explores such “blind spots” in self-perception, by investigating whether there are personality features that others consensually attribute to target persons, although these persons do not attribute these features to themselves, or think that others do so.

How do we measure whether a perceiver “knows” what a target person is like? The fundamental prerequisite of any accuracy study is the existence of an accuracy criterion that represents “the truth” (Funder & West, 1993; Vazire & Carlson, 2010). The accuracy criteria that are commonly used in personality research are quite diverse: One common criterion is objective “behavioral markers” of traits, such as smiling or talking in a laboratory setting (e.g., Back, Schmukle, & Egloff, 2009; Vazire, 2010) or actual behavior in everyday life (e.g., Mehl, 2006). Another common method is to

assess so-called “life outcomes” such as criminality, divorce, occupational success, or health (Fiedler, Oltmanns, & Turkheimer, 2004; Ozer & Benet-Martínez, 2006; Wagerman & Funder, 2007). These outcomes essentially reflect an aggregation of behaviors over time (e.g., conscientious behavior results in positive occupational or health outcomes). In order to determine accuracy, researchers investigate whether and how these criteria are associated with self- and other-perceptions of a target's personality traits.

A problem that often arises in such studies is the necessity to rationally justify the assumed connection between the behavioral markers (e.g., smiling) and the trait (e.g., Agreeableness? Extraversion? Both?). This problem is often solved by having experts rate which markers are indicative of which trait. A way to circumvent the problem is to use exactly the same rating dimensions for assessing predictor and criterion variables, so the “detour” via assumed marker–trait connections becomes expendable. For example, Vazire and Mehl (2008) collected self-ratings and peer-ratings of various everyday behaviors (e.g., watching TV) and used them to predict the actual frequencies of those very behaviors, which were measured using audio-recordings of participants' everyday life. While these accuracy criteria have many strengths (e.g., objectivity, ecological validity), the interpretation of such data is sometimes difficult because of the psychological ambiguity of many objectifiable everyday behaviors (e.g., what does it mean if a person watches TV frequently?).

Another common accuracy criteria used to assess self-knowledge is a person's reputation, or the consensual impression of several other individuals' perception of the target (Vazire &

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Carlson, 2010). This approach is in line with the “social reality” paradigm in personality psychology (Hofstee, 1994). Essentially, the consensual impressions of others is believed to be an especially valid measure of personality because each acquaintance’s perception is an aggregation of many observable behaviors over time and contexts, and aggregation across acquaintances removes systematic biases that are unique to a specific perceiver (Hofstee, 1994). Accordingly, Kenny (2004) uses “the judgment that would be made if all perceivers were able to see all the targets’ behaviors” (p. 269) as the accuracy criterion in his PERSON model (cf. Kenny, 1991, 1994). Arguably, it is difficult to come up with alternative explanations for the fact that many different raters of the same target person agree with each other, apart from their having observed something that “is actually there” (Leising, Erbs, & Fritz, 2010). This is especially true when different others agree in their judgments of particular targets (i.e., in judging what sets a specific target apart from other targets). Finally, regardless of whether aggregated other-judgments are “true” in a logical sense or not, what most others think of a person (e.g., whether he or she is “trustworthy”) will have highly important consequences for that person (Leising & Müller-Plath, 2009). Thus, the extent to which a person is aware of others’ perceptions, and/or agrees with these perceptions, is highly important.

In the present paper we compare targets’ perceptions of their own personalities and reputations to perceptions that other people have of the same targets’ personalities. We assume that, whereas individual perceivers may be quite wrong in assessing a person’s personality, the probability that averaged judgments by several people are wrong decreases with *how* many they are. Thus, we use averaged judgments by many others as an accuracy criterion in our study. In doing so, we combine some elements of the approaches discussed above. First, we use the exact same items for all assessments of predictor and criterion variables. Thereby, we forego the necessity to rationally establish connections between these assessments by means of some set of intermediary trait variables. Second, we use relatively broad, meaning-laden person descriptors (e.g., “prefers to stick with entrenched habits”) at the level of generality that personality researchers are used to deal with. Thus, there is little need to explain why given items (i.e., specific behaviors) are relevant with regard to personality.

Using a social reality framework, Luft and Ingham (1955) were among the first to systematically address the relationship between self- and other-perceptions in personality psychology. These authors presented a graphical 2×2 model called the *Johari Window*, in which they contrasted the views that people have of themselves with the views that others have of them. As shown in Fig. 1, this results in four quadrants: the quadrant of *free activity* contains the personality characteristics that are equally well known to the target persons, and to others, whereas the *hidden area* contains the characteristics that only the targets are aware of, or the “bright

spot” in self-knowledge. Most people believe that this quadrant encompasses the greatest number of personality characteristics (Vazire & Mehl, 2008). Nevertheless, it is conceivable that there may be personality characteristics that neither the target persons nor other people are aware of (e.g., a vulnerability to psychosis that has not manifested itself yet). In the Johari Window, these are represented by the *unknown area*. For the present study, however, the most relevant part of the Johari Window is the *blind area*, or the “blind spot”, which contains the personality characteristics that others accurately attribute to the targets, but which the targets fail to attribute to themselves.

Conceptually speaking, the Johari Window implies that – besides the views of self and others – there must be a third, independent “reality” that may only be incompletely assessed from both perspectives. Otherwise, it would not make sense to assume the existence of an “unknown area” to which neither the self nor others have access (yet), but which is nevertheless real. Accordingly, Vazire and Mehl (2008) used the Johari Window as their theoretical framework when predicting actual behavior frequencies (i.e., independent accuracy criteria) from self- and other-estimates of behavior frequencies. For many behaviors, the self and close others provided about the same amount of valid information (i.e., Free Activity Area), but there were also some clear asymmetries in knowledge. For example, the self was more accurate than others in predicting “arguing” (i.e., Hidden Area) whereas others were more accurate than the self in predicting “time spent with others” (i.e., Blind Area).

It is possible, however, to apply the logic of the Johari Window to situations in which no third criterion variable is available. The critical step is to assume that “reality” may be defined in terms of the *consensual* perceptions of other people (see above). In fact, Luft and Ingham, the inventors of the model, never made reference to any criterion variables apart from self- and other-perceptions. Rather, they always compared self-knowledge with the knowledge of *others* (plural!), implying consensual other-perception. Using such a “social reality” approach, Leising et al. (2010) found significant evidence for blind spots in self-knowledge. Specifically, when self-ratings were partialled out of other-ratings, there still was significant consensus between the residuals. That is, others agreed in attributing personality characteristics to targets that those targets did not attribute to themselves.

However, it is possible that these effects did not really reflect absolute “blind spots” (i.e., personality characteristics that the targets were completely *unaware* of), because the targets might have been aware that others perceived them differently than they perceived themselves: Several lines of work suggest that people *are* at least partially aware of how others perceive their personality (Carlson & Furr, 2009; Carlson & Kenny, 2012; Carlson, Vazire, & Furr, 2011). That is, when targets are asked to guess how others might rate their personality, their meta-perceptions (i.e., beliefs about how they are seen) are quite accurate. This type of self-knowledge is called *meta-accuracy* and reflects knowledge of one’s own social identity or reputation (Vazire & Carlson, 2010). Moreover, recent work suggests that people have insight into the ways in which others perceive them *differently* than they perceive themselves (Carlson & Furr, 2009; Carlson et al., 2011; Kenny & DePaulo, 1993; Oltmanns & Turkheimer, 2006). That is, when self-views are partialled out of metaperceptions, metaperceptions have incremental validity, beyond self-perceptions, in predicting others’ actual views of targets. This type of accuracy is called *meta-insight*. The goal of the present study is to demonstrate that, even when meta-insight is taken into account, systematic blind spots in self-perceptions of personality (as defined above) do still exist. In other words, we assume that people, on average, are not aware of some of the ways in which they are consensually perceived by others.

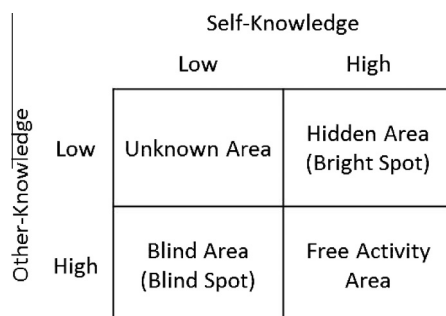


Fig. 1. Johari Window adapted from Luft and Ingham (1955).

2. Method

2.1. Sample

Seventy-five targets were recruited from freshman psychology lectures at a mid-sized university in Germany and from the personal social networks of the first and third author. The targets were asked to recruit as many *informants* (i.e., people who know them well) as possible, who would be willing and able to describe them. Ten targets were excluded because they recruited fewer than three informants. Thus, analyses were based on 65 targets (female = 53; age: $M = 21.17$, $SD = 2.06$). These targets recruited three to 34 informants ($M = 10.49$, $Md = 9$, $SD = 6.61$) and a total of 682 informants (419 female; age: $M = 25.33$, $SD = 10.21$) altogether. As described below, participants decided who to contact and forwarded information about the study directly to their informants. Thus, we could not determine the response rate. Most informants reported that they were “friends” (56.0%) with their targets, some categorized themselves as “acquaintances” (18.2%), and the rest assigned themselves to other categories (e.g., parent, sibling, romantic partner).

2.2. Procedures

Targets received an e-mail containing a personalized code (e.g. “S001”), a link to an online questionnaire, and information about how to recruit informants. The instructions for recruiting informants emphasized the importance of recruiting as many informants as possible, and of recruiting not only loyal, close others, but also informants who might view the targets more critically. The latter instruction was designed to overcome the so-called “letter of recommendation effect” (i.e., the tendency of targets to recruit informants who view them in stereotypically positive ways; [Leising et al., 2010](#)). Targets could recruit potential informants using various means including an email, a Facebook message, and little “cards” which the targets could print out and give to informants personally. Targets were given stock phrases for e-mails and Facebook messages that were similar to the message printed on the handout cards. The stock phrases presented information about the project and how to access the project website. Informants were instructed to enter their individualized code (e.g., “F001”) into the online questionnaire, which allowed us to link the informant to his or her particular target.

2.3. Measures

2.3.1. Personality ratings

We assessed self-, meta- and other-perceptions of personality. All three kinds of perceptions were measured with an item set that we had developed based on the Big Five model ([McCrae & Costa, 1999](#)). The item set comprised eight items for each factor of the Big Five (i.e., 40 items). Four items for each factor were positive in valence, and four were negative. Due to a technical glitch, the targets were only able to complete 37 of the 40 metaperception items. Therefore we dropped the corresponding self- and other-perception items as well (i.e., results include only these 37 items missing “I have a positive outlook on the future”, “I have a high sense of self-esteem”, “I love going out”). Factor analyses showed that the intended Big Five structure could not be corroborated. However, the present study focuses on target-wise analyses (using profiles comprising all 37 items) and item-wise analyses, rather than the broad five factors.

Items were rated on a 1 (*strongly disagree*) to 5 (*strongly agree*) scale, but instructions differed between the three types of personality perception. The self-perception items asked targets to report

how they see themselves (e.g. “I am lazy”), the meta-perception items asked them to describe how they think others, in general, perceive them (e.g. “Others think I am lazy”), and the other-perception items asked the informants to describe how they generally see “their” target persons (e.g. “This person is lazy”).

2.3.2. Liking and knowing

Targets were asked to report how much they like themselves on a 1 (not at all) to 5 (very much) scale. Informants also rated how much they liked their targets, and how well they thought they knew their targets, on a 1 to 5 scale (Liking: 1 = *not at all*, 5 = *very much*; Knowing: 1 = *not at all*, 5 = *very well*).

2.3.3. Ratings of item desirability, evaluativeness, and observability

A separate group of subjects ($N = 25$, female = 19) between the age of 22 and 64 ($M = 31.64$, $SD = 12.62$) rated the social desirability of the personality items by assessing how much each item implies a positive or negative evaluation of a target person (1 = *very negative* to 5 = *very positive*). The same raters also provided observability ratings for each item, reflecting how well the respective personality characteristics may be observed by other people (1 = *not visible at all* to 5 = *very well visible*). Furthermore, we also computed an evaluativeness-score for each item, by using the absolute value of the difference between the item's average desirability rating, and 3 (i.e., the mid-point of the scale) (cf. [John & Robins, 1993](#)).

2.4. Data analysis

To investigate blind spots in self-perception, we took both a variable-centered (i.e., nomothetic) approach as well as a person-centered (i.e., idiographic) approach. In this context, the person-centered approach examines whether people have blind spots regarding their own individual *patterns* of traits, whereas the variable-centered approach examines whether people have blind spots for their individual levels of a given trait relative to other people.

2.4.1. Person-centered approach

Conceptually, the person-centered approach examines whether the patterns of a person's self-view and meta-perception correspond to the patterns of traits that others ascribe to him or her. For example, Jane would demonstrate a blind spot in self-perception if (a) others agree that she is more outgoing and dependable than smart, but (b) Jane neither agrees with this patterning of traits for herself, nor (c) suspects that others attribute this pattern of traits to her.

Person-centered blind-spots were investigated using profile analyses. Each raw profile (e.g., a person's self-perception profile of the 37 traits) is comprised of a *normative* component, which reflects the typical profile (i.e., how the typical person views him- or herself), and a *distinctive* component, which reflects how the given profile is unique from all other profiles (i.e., how an individual sees him or herself as unique from the typical person; [Borkenau & Zaltauskas, 2009](#); [Cronbach, 1955](#); [Furr, 2008](#)). The normative component, or the *normative profile*, is the average profile for a given type of perception (e.g., the average self-rating across all targets). The distinctive component, or the *distinctive profile* is generally the difference between a perceiver's raw profile and the normative profile ([Borkenau & Zaltauskas, 2009](#); [Cronbach, 1955](#); [Furr, 2008](#)). For example, the differences between a target's raw self-perception profile and the normative self-perception profile reflect the ways in which the target sees him/herself differently than the typical person sees him/herself. In other words, distinctive profiles reflect the *unique* aspects that set a given target apart from other targets, and thus come closest to what we ordinarily mean when speaking of “personality”. In the present study, instead of subtracting raw

profiles from the normative profile, we regressed raw profiles on the normative profile to obtain distinctive profiles (i.e., residual profiles). The reason for this is that we had to use regressions anyway (e.g., for partialling self- and meta-perceptions out of other-perceptions), and thus applying a regression approach in all analyses throughout the paper seemed more consistent to us. However, analyses using differences did not lead to any different conclusions. Across all targets, the average correlation between distinctive residual profiles and distinctive difference profiles was $r = .97$ ($t(64) = 274.74$, $p < .001$). Note that, in this and some of the subsequent computations, df is 64 because we used one-sample t -tests to determine whether correlations that had first been averaged separately for each target were significantly different from zero, on average, across targets.

We first assessed whether others agreed about the targets' personalities (*consensus*), by computing Pearson correlations among other-perception profiles. We also determined the level of agreement between the targets' self-ratings and the respective other-ratings, as well as associations between these variables and the targets' meta-perceptions. In this paper, we always report *averaged pairwise correlations*. The reason is that the number of informants per target varied widely, and higher numbers of informants were likely to contribute to better reliability, so correlations between averaged other-ratings and other variables (e.g., self- or meta-perceptions) were likely to increase with the number of informants. In order to avoid such confounding, we computed all pairwise correlations first, and then averaged them. This way, the different kinds of agreement between perspectives became directly comparable with one another, across targets. Correlations were subjected to Fisher's r -to- Z transformation before averaging, and averaged correlations were later back-transformed.

In the present study, we examined both a *normative blind spot* (i.e., a profile of personality characteristics that informants, but not targets, reliably attribute to the *average target*), as well as *distinctive blind spots* (i.e., profiles of personality characteristics that informants, but not the targets, attribute to *particular targets*). Note that, as Luft and Ingham (1955) only focused on other-knowledge of *individual targets*, our including the normative blind spot constitutes a specification of their model. We first predicted *each* other-rating profile (ranging from three to 34 profiles per target) from the respective target's self- and meta-perception profile. This yielded between three and 34 raw residual profiles for each target. Each raw residual profile represents an informant's impression of the target that converges neither with the target's self-perception or meta-perception. Next, we created a *raw blind spot profile* for each target, which was the average of all raw residual profiles across the target's informants. The raw blind spot profile reflects the pattern of personality characteristics that a target's informants agree about, but that does not converge with the target's self- or meta-perception. Note that these profiles still contain information about how the *typical person* is seen by others (i.e., a normative component).

To examine *distinctive blind spots*, or unique aspects of personality that only others see in a given target, we first computed the *normative blind spot profile* which was the average of all 65 targets' raw blind spot profiles. The normative blind spot profile reflects the characteristics that informants, but not targets, attribute to the *average target*. Regressing a *given informant's* raw residual profile (i.e., the characteristics that this informant, but not the target, attributes to the target) on the normative blind spot profile results in another residual profile: That informant's *distinctive residual profile* which reflects the characteristics that this informant, but not the target, attributes to this particular target, *controlling* for the characteristics that the *average informant*, but not the *average target*, attributes to the *average target*.

Given the complexity of these analyses, we illustrate our computations with the following example: Tom judges himself and is

judged by three informants (Andy, Bella and Carl). Tom provides a self-rating profile, and a meta-perception profile, using the same set of items. His three informants provide other-rating profiles using the same items. Our first step is to obtain the three *raw residual profiles* that reflect the individual views that Andy, Bella, and Carl have of Tom that are *not shared* with Tom's self-perception and meta-perception. To do so, we regress each other-rating profile on Tom's self-perception and meta-perception profiles, and save the residuals. Averaging these raw residual profiles across informants yields Tom's *raw blind spot profile*, or the personality characteristics that Andy, Bella, and Carl (but not Tom) consensually attribute to Tom. However, the raw blind spot profile may contain some normative characteristics that would be attributed to *any* target by *any* informants, on average. In order to control for this normativeness, we average the raw blind spot profiles of all targets in the entire sample, which yields a single *normative blind spot profile*. This is the blind spot profile of the typical target person.

To obtain a distinctive blind spot profile for Tom, we separately regress Andy's, Bella's and Carl's raw residual profiles on the normative blind spot profile, and save the new residuals (i.e. *distinctive residual profiles*). For example, like everyone else, Tom might be described by others as less honest and more outgoing than he sees himself or his reputation, but his friend Andy might see him as even less honest or even more outgoing than that. This distinctive view of Tom would be represented by Andy's distinctive residual profile.

By averaging Andy's, Bella's and Carl's distinctive residual profiles, we obtain Tom's *distinctive blind spot profile*. It reflects the pattern of personality characteristics that the three informants consensually attribute to Tom in particular (i.e., controlling for normativeness), although Tom neither attributes these characteristics to himself, nor expects others to attribute these characteristics to him.

The average pairwise correlation between the distinctive residual profiles reflects the *extent* to which Andy, Bella and Carl attribute the *same* distinctive characteristics to Tom that Tom does not use to describe himself or his social identity. This latter correlation is the most important coefficient in the present study. It reflects the average pairwise agreement between two informants attributing personality characteristics to a *particular target*, which this target does not attribute to himself or herself or his or her identity. For each target, the number of such profile correlations is $k * (k - 1) / 2$, with k being the number of informants recruited by that target. To enable fair comparisons, we computed all of these pairwise profile correlations, and averaged them, first for each target, and then across targets.

2.4.2. Variable-centered approach

Before we could compare blind spots across traits, we first had to ensure that all targets had the same number of informants. The reason is that otherwise some informant-ratings (e.g., by the 30th informant) would disproportionately affect the analyses because they would only comprise very few observations (i.e., as many as there were targets who had recruited that many informants). Therefore, we drew a random sample of three informants for all targets who had more than three informants, so the item-wise analyses are based on a random subsample of $N = 195$ (124 female; age: $M = 26.08$, $SD = 11.80$) informants only. This subsample did not differ from the remaining 487 informants in any meaningful way, e.g. sex ($\chi^2(1, N = 682)$, $p = .47$), age ($t(297.93) = 1.11$, $p = .27$), education level ($t(680) = -.70$, $p = .48$), informants' knowing of the targets ($t(664) = 1.51$, $p = .13$) and informants' liking of the targets ($t(664) = .67$, $p = .51$). For each item, we computed average pairwise correlations between self-, meta- and other-perceptions and average pairwise partial correlations between meta- and other-perceptions (controlling for self-perception). Moreover, we predicted

the informants' perceptions from the respective targets' self- and meta-perceptions. For each item, this led to three residual vectors. The average pairwise correlation between these residual vectors reflects the extent to which the informants agreed in attributing that characteristic to the targets, when controlling for the targets' self- and meta-perception. Note that there is no normative component in item-wise analyses, so there was no need to control for normativeness.

3. Results

3.1. Liking and knowing

The distribution of the informants' liking regarding the targets was 1 ($n = 5$), 2 ($n = 1$), 3 ($n = 41$), 4 ($n = 224$), 5 ($n = 395$). Thus, despite our explicit request that the participants should try to also recruit neutral and critical informants, only a small minority of targets were successful at doing so. In fact, 92.94% of the informants liked their targets at least somewhat (≥ 4), suggesting that it is very difficult for people to obtain ratings of their personality from neutral or critical informants. The distribution of knowing was 1 ($n = 6$), 2 ($n = 40$), 3 ($n = 210$), 4 ($n = 226$), 5 ($n = 184$). Informants who said they knew their targets better also reported that they liked them more, median $r = .58$ ($p < .001$).

Notably, targets who said they liked themselves more recruited a larger number of informants, $r_{(63)} = .27$, $p < .05$. We speculate that targets with a more positive attitude towards themselves either had larger social networks to draw informants from, or that they were less afraid to actively contact people and ask them to participate, or both. No significant correlation was found between liking oneself and being liked by one's informants, $r_{(63)} = .05$, $p = .68$. On average, the informants liked their targets more, $M = 4.51$, $SD = .69$, than the targets said they liked themselves, $M = 3.68$, $SD = .87$, $t(64) = -7.84$, $p < .001$.

3.2. Person-wise analyses

3.2.1. Profile agreement between self-, meta-, and other-perceptions

The average pairwise profile agreement between two informants who judged the same target was strong ($r = .64$, $t(64) = 27.59$, $p < .001$) suggesting that informants generally agreed a great deal about targets' patterns of traits. The average pairwise profile agreement between self- and meta-perceptions was $r = .71$ ($t(64) = 32.27$, $p < .001$), suggesting that targets believed that others perceived their pattern of traits very similarly to how they viewed themselves. Likewise, the association between self- and other-perceptions was strong ($r = .59$, $t(64) = 32.05$, $p < .001$), suggesting that targets agreed with their informants about their personalities. The association between meta- and other-perceptions ($r = .55$, $t(64) = 24.45$, $p < .001$) was also strong, suggesting that targets were largely aware of their actual reputations. The average semipartial-correlation between meta- and other-perception, after partialling self-perception out of meta-perception (i.e., meta-insight) was $r = .18$, $t(64) = 12.92$, $p < .001$. In other words, targets were aware of the ways in which others perceived them differently than they perceived themselves, despite the strong association between meta- and self-perception. This replicates and extends the previously reported findings by Carlson et al. (2011): People possess meta-insight at the profile level – they distinguish between how they see their own patterns of traits and how their patterns of traits are seen by others.

3.2.2. Blind spot profiles and correlations

Within targets, the agreement between two individual informants' raw residual profiles (i.e., informant-rating profiles control-

ling for the target's self- and meta-perception) varied considerably (range: $r_{\min} = -.70$, $r_{\max} = .92$), whereas across targets, the average pairwise correlation between all k raw residual profiles for a given target was $r = .38$ (range: $r_{\min} = -.07$ and $r_{\max} = .67$), $t(64) = 19.78$, $p < .001$. In other words, there was significant consensus between informants in attributing personality features to the targets that the targets did not attribute to themselves or to their reputations.

We computed the normative blind spot profile by first averaging each target's raw residual profiles across informants, and then averaging these average profiles across targets. Thus, the normative blind spot profile reflects personality characteristics that informants, but not targets, attribute to the average target. Recall that there is only one normative blind spot profile. The normative blind spot profile correlated at $r_{(35)} = .93$, $p < .001$, with the social desirability ratings of the items. Thus, the informants attributed more positive personality characteristics to the targets, on average, than did the targets themselves.

Within targets, the agreement between two individual informants' distinctive residual profiles also varied considerably (range: $r_{\min} = -.60$, $r_{\max} = .89$). Across targets, the average pairwise correlation between all k distinctive residual profiles for a given target was $r = .26$ (range: $r_{\min} = -.06$, $r_{\max} = .53$), $t(64) = 20.00$, $p < .001$. This is one of the central findings of the present study. It demonstrates that others share views of particular target persons of which those target persons are not aware. By averaging, rather than correlating, all of a given target's distinctive residual profiles, we obtained each target's distinctive blind spot profile. The average correlation between these profiles and the desirability of the items was $r = .00$, $t(64) = .02$, $p = .98$, suggesting that the distinctive blind-spot profiles were evaluatively neutral, on average.

3.3. Item-wise analyses

We also ran the same analyses that were presented above, using an item-wise approach. Table 1 displays the respective correlations between self-, meta- and other-perception, the semi-partial correlations between meta- and other-perception, and the blind spot correlation between residualized informant ratings, for each individual item, and for the average item. Ninety-five percent confidence intervals (CIs) for the averaged correlations were obtained by bootstrapping, due to non-independence of observations. The table also contains the averaged ratings of the characteristics (desirability, evaluativeness and observability) of the individual items, and the correlations between these item characteristics and the different kinds of agreement between perspectives. Again, confidence intervals were determined by bootstrapping.

The correlation between self- and meta-perception was significant, on average, $r = .53$, CI: .46–.59, and increased with the observability, $r_{(35)} = .42$, CI: .12–.75, and with the social desirability of the respective trait, $r_{(35)} = .28$, CI: .01–.50. Consensus, $r = .20$, CI: .17–.22, and self–other agreement, $r = .21$, CI: .17–.24 were also significant on average, and also showed positive associations with trait observability, $r_{(35)} = .44$, CI: .08–.68 and $r_{(35)} = .47$, CI: .37–.76. Furthermore, there was significant meta-accuracy, $r = .22$, CI: .17–.26, and meta-accuracy also increased with trait observability, $r_{(35)} = .53$, CI: .26–.74. Meta- and other-perception were significantly related to each other, even after partialling self-perception out of meta-perception, $r = .12$, CI: .09–.15. Thus, there was meta-insight, which was also significantly related to trait observability $r_{(35)} = .30$, CI: .01–.54. Finally, there was significant pairwise agreement between the informants' residual profiles, on average, clearly corroborating the existence of a blind spot, $r = .14$, CI: .12–.17. The blind spot agreement correlations ranged from $r = -.01$ ("Treats others with fairness") to $r = .29$ ("Prefers to stick with entrenched habits"). There was no significant relation between blind spot agreement and item

Table 1

Itemwise associations between the different perspectives on the target persons, and their associations with item characteristics (desirability, evaluativeness, and observability).

Item	SD	E	Ob	S–M	S–O	M–O	O–O	M/S–O	rBS
Treats others with fairness (ist anderen gegenüber fair)	4.72	1.72	3.52	.45	.07	.03	.12	.00	.13
Enjoys life (hat Freude am Leben)	4.60	1.60	4.00	.56	.26	.22	.28	.10	.26
Is punctual (ist pünktlich)	4.08	1.08	4.64	.82	.43	.43	.42	.14	.28
Likes getting together with others (trifft sich gern mit anderen)	3.76	0.76	4.16	.74	.39	.39	.20	.16	.01
Is full of ideas (steckt voller Ideen)	4.20	1.20	3.36	.65	.23	.19	.11	.05	.07
Behaves arrogantly (ist anderen gegenüber arrogant)	1.24	1.76	3.80	.56	.27	.24	.24	.11	.19
Feels guilty most of the time (fühlt sich ständig schuldig)	2.24	0.76	2.40	.41	.11	.07	.21	.02	.22
Does not honor agreements (hält sich nicht an getroffene Vereinbarungen)	1.56	1.44	3.96	.18	.12	.001	.09	–.02	.08
Is very little interested in social contact (ist an sozialen Kontakten sehr wenig interessiert)	2.12	0.88	3.64	.12	.02	.34	.22	.34	.12
Has no imagination (hat keine Fantasie)	2.48	0.52	2.60	.49	.29	.16	.18	.03	.12
Is an honest soul (ist eine ehrliche Haut)	4.36	1.36	2.60	.47	.11	.15	.20	.11	.20
Is rarely frightened (erlebt selten Angst)	3.12	0.12	2.12	.38	.12	.07	.09	.03	.08
Is highly conscientious (ist sehr pflichtbewusst)	3.96	0.96	3.28	.52	.38	.32	.26	.15	.12
Gets into top gear when with others (blüht in einer Gruppe auf)	3.56	0.56	4.08	.76	.26	.29	.22	.16	.16
Likes to gain new experiences (sammelt gern neue Erfahrungen)	4.00	1.00	3.16	.55	.15	.20	.15	.13	.12
Sometimes manipulates others (manipuliert manchmal andere Menschen)	1.72	1.28	2.40	.58	.09	.17	.28	.15	.27
Is often worried (macht sich viele Sorgen)	2.72	0.28	2.20	.67	.10	.13	.22	.08	.21
Is lazy (ist faul)	1.60	1.40	3.40	.52	.38	.42	.21	.26	–.01
Is very aloof (ist anderen gegenüber sehr verschlossen)	2.44	0.56	4.04	.72	.37	.41	.40	.20	.28
Is not interested in world affairs (interessiert sich nicht dafür, was in der Welt passiert)	2.44	0.56	2.84	.35	.13	.19	.16	.16	.13
Is ready to compromise (ist kompromissbereit)	4.16	1.16	3.24	.49	.08	.14	.16	.12	.15
Completes tasks that he/she has begun (führt angefangene Unternehmungen auch zuende)	4.28	1.28	3.52	.61	.06	.14	.21	.12	.21
Is easily enthused about things (ist leicht zu begeistern)	3.40	0.40	4.04	.44	.11	.16	.12	.12	.11
Likes getting involved in new and unknown situations (lässt sich bereitwillig auf neue, unbekannte Situationen ein)	3.52	0.52	3.56	.43	.11	.32	.10	.29	.02
Is easily provoked (ist leicht zu provozieren)	1.80	1.20	4.36	.66	.22	.15	.21	.00	.17
Is highly afraid of rejection (hat sehr große Angst vor Zurückweisung)	2.28	0.72	2.16	.19	.14	.09	.06	.06	.05
Works mostly with minimal effort (tut selten mehr als unbedingt nötig)	2.00	1.00	2.96	.37	.20	.17	.16	.10	.14
Is mostly taciturn and silent (ist meist wortkarg und schweigsam)	2.40	0.60	4.44	.70	.50	.55	.46	.28	.21
Is not interested in cultural activities (interessiert sich nicht für Kultur)	2.40	0.60	2.92	.65	.31	.28	.24	.11	.19
Likes doing others a favor (tut anderen gern einen kleinen Gefallen)	4.12	1.12	3.56	.52	.12	.08	.13	.02	.13
Values organization and planning a lot (legt hohen Wert auf Ordnung und Planung)	3.64	0.64	4.04	.36	.28	.30	.17	.21	.06
Likes to engage in philosophical discussions (philosophiert gern über Gott und die Welt)	3.12	0.12	3.48	.67	.22	.22	.33	.09	.29
Wants to be second to none (möchte anderen ständig überlegen sein)	1.64	1.36	3.08	.48	.18	.26	.10	.19	.04
Gets thrown off the track easily by setbacks (wird von belastenden Erlebnissen immer richtig aus der Bahn geworfen)	2.36	0.64	2.88	.43	.09	.05	.08	.02	.09
Does not set high standards for himself/herself (hat keine hohen Ansprüche an sich selbst)	2.24	0.76	2.32	.28	.12	.14	.14	.11	.13
Prefers to be by himself/herself (ist lieber für sich allein)	2.52	0.48	3.40	.62	.36	.47	.26	.32	.04
Prefers to stick with entrenched habits (bevorzugt eingefahrene Wege)	2.52	0.48	2.52	.40	.26	.13	.15	.03	.09
Mean				.53 ^a	.21 ^a	.22 ^a	.20 ^a	.12 ^a	.14 ^a
Correlation with									
Social desirability				.28 ^a	–.06	–.04	.001	–.09	.10
Evaluativeness				–.03	–.10	–.14	–.06	–.14	.05
Observability				.42 ^a	.47 ^a	.53 ^a	.44 ^a	.30 ^a	.11

Notes. SD = Social desirability. E = Evaluativeness. Ob = Observability. S–M = Self–meta agreement. S–O = Self–other agreement. M–O = Meta-accuracy. O–O = Consensus. M/S–O = Meta-insight. rBS = agreement among informants on blind spot characteristics.

^a Confidence interval of the bootstrapping procedure did not contain zero.

characteristics, and item evaluativeness was not associated with any kind of inter-rater agreement.cc

4. Discussion

In the present study, we found clear evidence for the existence of distinctive blind spots in people's perceptions of themselves and their reputations, using a "social reality" approach. Specifically, our results suggest that the typical person is not aware of, some of the unique ways in which he or she is consensually perceived by others.

In a previous study (Leising et al., 2010) informant-ratings were only regressed on the targets' self-perceptions, but meta-perceptions were not assessed. Thus it was possible that the participants in that study were not really "blind" with regard to the characteristics that others attributed to them, but simply failed to integrate these views into their self-perceptions. In the present study meta-perception was controlled for, so we may conclude that "blind spot" (from the perspective of the target person) is actually an appropriate term to describe this particular kind of interpersonal

perception. People do not only disagree with some of the ways in which they are consensually seen by others, they are also unaware of some these ways.

However, even though we did find evidence for such blind spots, we could also replicate Carlson et al.'s (2011) findings on meta-accuracy and meta-insight, using both a target-wise and an item-wise approach. Given that the present study was conducted in a different country, using a different item set, we think it may now be firmly concluded that people are at least partially aware of how others see them, even if they do not fully agree with those views. Interestingly, we also found that meta-accuracy and even meta-insight increased with the observability of the items, just as self–other and other–other agreement usually increases with observability (Funder & Colvin, 1988; John & Robins, 1993). Given that people's guesses of how others see them were more accurate for those characteristics that are more observable from outside, we think that when inferring others' views, people seem to be able to mentally "slip into the shoes" of an outside perceiver who only has direct access to their more observable traits.

The present study enables a direct comparison between the effect size of the blind spot correlation and other kinds of agreement between perspectives in interpersonal perception. In the person-wise analyses, the distinctive blind spot correlation ($r = .26$) was considerably lower than self-other ($r = .59$) and other-other ($r = .64$) agreement, but it needs to be acknowledged that the latter two kinds of agreement were inflated by normativeness. The person-wise distinctive blind spot correlation was even a bit higher than the respective meta-insight correlation ($r = .18$). This is particularly noteworthy because the distinctive blind spot correlation still emerged after two rounds of partialling out various kinds of systematic and potentially shared variance (self-perceptions, meta-perceptions, and the normative blind spot profile). The item-wise analyses, in which normativeness does not play a role, enable a more fair comparison of the blind spot correlation ($r = .14$), with self-other agreement ($r = .21$), other-other agreement ($r = .20$), and meta-insight ($r = .12$). We conclude that, when compared with the sizes of other important effects in interpersonal perception research, blind spot correlations are quite substantial.

So what are the implications of our findings? First and foremost, the respective quadrant in the Johari Window describes a real phenomenon. There are consensual perceptions of a target that the target person is not aware of. Luft and Ingham (1955) repeatedly addressed the possibility that a person's self-knowledge may be broadened or increased by providing him or her with systematic feedback about how he or she is (consensually) seen by others. Providing such feedback would only make sense if (distinctive) blind spots do exist, that is (a) others' views of the targets are shared at least to some extent, and (b) the overlap between others' shared views and the targets' self- and meta-perception is incomplete. If condition "a" was not met, then the self could not "learn" anything from others, because the others' views would only reflect idiosyncratic opinions (i.e., measurement error). If condition "b" was not met, then the self could not learn anything from others that he or she does not already know. However, the present study demonstrates that there is something to be learned by asking others about ourselves. Interestingly, although giving feedback is a very common practice in many applied settings, research about personality feedback is virtually absent (Bollich, Johannet, & Vazire, 2011). We think that this line of research is an important and logical next step. For example, under which conditions do people provide or fail to provide feedback to each other spontaneously and with what motivation do they provide feedback (e.g., to help or to hurt the other person)? Perhaps more importantly, under which circumstances is feedback internalized and when is it more or less effective in encouraging behavioral changes if necessary?

In addition to distinctive blind spots, we also found evidence for a "normative blind spot." Recall that normative blind spot profile was highly socially desirable, which may be explained by the fact that typical informants like "their" targets more than the respective targets like themselves and thus are likely to provide more positive personality ratings in general. Research has shown extremely strong relationships between a perceiver's liking of a target, and the extent to which that perceiver will attribute positive, and not attribute negative, characteristics to that target (e.g. Leising, Ostrovski, & Zimmermann, in press). If one accepts the widely-held notion that there is a *self-serving bias* in self-perception (e.g., Dunning, Heath, & Suls, 2004), then these even more positive ratings by close acquaintances suggest the existence of an even stronger *pal-serving bias* (cf. Leising et al., 2010). With regard to overly positive self-ratings, it is commonly assumed that a general need for ego-protection promotes biased attention and information processing (cf. Andersen & Ross, 1984; Dunning, 1999; Robins & John, 1997; Sedikides, 1993). According to our view, it seems possible that a perceiver who is not identical with the target person may also be motivated by a need for ego-protection when judging someone

else: Judging your best friend, or your romantic partner, for example, might be just as ego-involving, or even more ego-involving, as judging yourself (John & Robins, 1993; Vazire, 2010; Vazire & Carlson, 2011). After all, when we rate the personalities of our close acquaintances, we provide evaluations of people that we choose to voluntarily spend much of our time with. Alternatively, the highly positive informant-ratings may be explained in terms of cultural norms: At least in Germany, where the present study was conducted, it is not tabooed to speak very favorably of your friends, but it is tabooed to do the same with regard to yourself. Such asymmetric taboos may explain some, or all, of the positivity of the normative blind spot profile.

One limitation of the present study may be seen in the fact that the sample of targets was relatively small and consistently predominantly of female university students. The study did obviously have sufficient statistical power to demonstrate the effects that we wanted to show, but future replication attempts should definitely use more representative samples. Another limitation that is shared with most other studies using informant-ratings is that most of the informants in the present liked their targets very much. Leising et al. (2010) found that highly positive relationships between informants and targets are associated with lower variances in portrayals of the targets' personalities because targets are described in stereotypically positive ways (cf. Peabody & Goldberg, 1989; for newer evidence pointing into the same direction, see Leising, Ostrovski, & Borkenau, 2012). However, in the present study the "rose-colored glasses" through which many informants seem to see the targets who recruited them did not completely extinguish those informants' capacity to reliably identify distinctive features of the targets' personalities. Nonetheless it would be intriguing to repeat the present study with a sample of informants who have more neutral or even critical views of the targets they judge. The present study demonstrated that it is very difficult to obtain such an informant sample if the recruitment of the informants is laid in the hands of the targets. Obviously, people have a hard time obtaining critical evaluations of their personality from others. It seems that, in order to solve this problem, researchers themselves need to take responsibility for the recruitment of informants. Samples of more neutral or critical informants may be obtained in social environments where people get to know each other quite well, but have little or no control over whom they spend their time with (work or educational settings, student dorms) (e.g., Olmanns & Turkheimer, 2006). We would expect that, under such conditions, blind spot effect sizes may become even larger, because informants who have no particular loyalties regarding their targets would be less motivated to systematically overlook (e.g.) those of the target's personality features that are more problematic. Whether or not this is actually the case remains to be determined by future research.

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