

How Orthogonal Are the Big Two of Social Perception? On the Curvilinear Relation Between Agency and Communion

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Abstract

Humans make sense of their social environment by forming impressions of others that allow predicting others' actions. In this process of social perception, two types of information carry pivotal importance: other entities' communion (i.e., warmth and trustworthiness) and agency (i.e., status and power). Although commonly thought of as orthogonal dimensions, we propose that these Big Two of social perception are curvilinearly related. Specifically, as we delineate from four different theoretical explanations, impressions of communion should peak at average agency, while entities too high or too low on agency should be perceived as low on communion. We show this pattern for social groups across one novel and five previously published data sets, including a meta-analysis of the most comprehensive data collection in the group perception literature, consisting of 36 samples from more than 20 countries. Addressing the generalizability of this curvilinear relation, we then report recent and unpublished experiments establishing the effect for the perception of individuals and animals. On the basis of the proposed curvilinear relation, we revisit the primacy of processing communion (rather than agency) information. Finally, we discuss the possibility of a more general curvilinear relation between communion and dimensions other than agency.

Keywords

stereotype content, social groups, individuals, animals, agency, communion/warmth, curvilinear relation

Humans try to get an accurate picture of what others are like by explaining their behavior in terms of traits and other time- and situation-stable characteristics. As long-lasting psychological research on this process of impression formation attests, people extract such information about others spontaneously and without effort to efficiently navigate their social environment. From thin slices of behavior or group stereotypes, people go beyond the information given (Bruner, 1957) by inferring the likelihood of future behavior of individuals on the basis of information like sheer group membership (Hamilton, Sherman, & Ruvalo, 1990).

What are the basic dimensions on which people spontaneously perceive individuals and groups? Several findings point to the centrality of two dimensions that describe how potent, dominant, and influential (*agency*) as well as how warm, friendly, and well-intentioned (*communion*) the respective entity is (Fiske, Cuddy, Glick, & Xu, 2002; for an overview of highly similar but differently labeled constructs, see Abele & Wojciszke,

2014). Across cultures, these two dimensions span a space in which each group can be consensually positioned (Cuddy et al., 2009). Agency and communion have been found so consistently not only across cultures but also across time and beyond groups (for an overview, see Abele & Wojciszke, 2014) that they have come to be known as “universal dimensions of social cognition” (Fiske, Cuddy, & Glick, 2007, p. 77) or just the Big Two (Paulhus & Trapnell, 2008).

Social perception is only one among many subfields of psychology in which these two dimensions have been suggested as the best-fitting and most parsimonious description of psychological content over the past 50 years. Interpersonal behavior traits and motives are organized around the two main axes of status and power

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(agency) and solidarity and love (communion; i.e., the classical and still highly influential circumplex models by Leary, 1957, and Wiggins, 1979). People's self-views vary on agency and communion (Abele & Wojciszke, 2007),¹ as do their self-presentations (Paulhus & Trapnell, 2008). Agency and communion have been discussed as the central dimensions of the content of critical life events (McAdams, Hoffman, Mansfield, & Day, 1996), determinants of well-being (Helgeson, 1994), leadership styles (Halpin & Winer, 1957; Koenig, Eagly, Mitchell, & Ristikari, 2011), brand design (Kervyn, Fiske, & Malone, 2012), and sociocultural guidelines (getting ahead vs. getting along; Gebauer, Paulhus, & Neberich, 2013; Gebauer, Sedikides, Lütke, & Neberich, 2014).

Given the pivotal role of the Big Two, it is of great importance to understand how they relate to each other. Thus, it is not surprising that their interrelation is a classic and very active research question across many psychological subfields (e.g., Abele & Wojciszke, 2014). In the present article, we propose a new look on how the Big Two systematically interplay in the field of social perception. After delineating the hypothesis of a curvilinear relation between perceived agency and communion, we provide data in support of this notion for the stimulus domain of social groups. We then bolster the generalizability of a curvilinear relation between perceived agency and communion by showing that it also applies to people's perception of individuals and even animal species. More precisely, we show that groups, people, and animals perceived as low or high on agency are perceived as less communal than entities perceived as average on agency, resulting in a curvilinear relation between perceived agency and communion.

What Is the Relation Between Perceived Agency and Communion?

Early theorizing conceptualized agency and communion as antagonistic poles of a single dimension (with traits, persons, and groups ranging from agentic to communal; Bakan, 1966), but this idea was soon replaced by a two-dimensional approach. Because people with both malign and benign intentions (low vs. high communion) can be both able and unable to carry out their plans (low vs. high agency), originally the Big Two were theorized to be orthogonal (e.g., Osgood, Suci, & Tannenbaum, 1957; Wiggins, 1979). The independence of agency and communion has been shown for the perception of behaviors (Cislak & Wojciszke, 2008), the self (Abele, 2003), and groups (Cuddy et al., 2009; Kervyn, Fiske, & Yzerbyt, 2013).

However, there are reasons to assume that agency and communion are not orthogonal (Abele & Wojciszke, 2014). Consistent with a need for cognitive consistency

(e.g., Festinger & Carlsmith, 1959), it could be that perceived low negative agency spills over to perceived low negative communion (and vice versa), whereas perceived higher positive agency spills over to perceived higher positive communion (and vice versa). This motivated generalization of positive and negative evaluations (the halo and horns effect; Dion, Berscheid, & Walster, 1972) suggests a positive relation between the Big Two. Indeed, some investigators have reported a positive relation (traits: Abele & Wojciszke, 2007; Suitner & Maass, 2008; people: Wojciszke & Abele, 2008; and groups: Durante et al., 2013).

Building on earlier ideas of a communal and an antagonistic agentic pole of one underlying dimension and consistent with a need for evaluative justice (e.g., Kay & Jost, 2003), we believe that it also could be that groups and people perceived as low or negative on agency (communion) are upgraded with perceptions of higher or positive communion (agency), whereas groups and people perceived as higher or positive on agency (communion) are downgraded with perceptions of low or negative communion (agency). This motivated evaluative compensation suggests a negative relation between the Big Two in the perception of social agents, and there is actually a growing body of research that supports a negative relation (Judd, James-Hawkins, Yzerbyt, & Kashima, 2005; Kervyn, Bergsieker, & Fiske, 2012; Wojciszke, 1994).

In light of both theoretical considerations and empirical findings in support of independence, a positive linear relation, and a negative linear relation, the evidence regarding the relationship between agency and communion can best be described as inconsistent. One potential reason for this inconsistency is that there is no systematic relationship. Alternatively, it may be that the Big Two are systematically related across time and situations but not in a linear fashion. The fact that no previous research has pointed to this possibility exemplifies the typical and frequent focus of many psychologists on linear relations, although many relations in the world are curvilinear (Grant & Schwartz, 2011).

One of the most famous examples of a curvilinear relation between psychological variables is the Yerkes-Dodson law, whereby performance is higher at intermediate levels of arousal compared with too little and too much arousal (Yerkes & Dodson, 1908). Arousal is not the only variable that has an inverted U-shaped relation to performance. The same holds true for conscientiousness: Employees who have extremely low or extremely high levels of conscientiousness show less organizational citizenship behavior, more counterproductive work behavior, and less job performance than employees with intermediate levels of conscientiousness (Carter et al., 2014). People with moderate self-esteem and intelligence yield more to persuasion than do people with particularly low or high self-esteem and

intelligence (Rhodes & Wood, 1992). Similarly, an intermediate degree of time pressure can increase creativity, whereas too little or too much time pressure does not (Baer & Oldham, 2006). Such curvilinear relations sometimes seem counterintuitive and “difficult to find” (Fleishman, 1998; p. 831), which might explain why a curvilinear relation between perceived agency and communion has not been explored yet. In the present article, we aimed to fill this gap.

Arguing for a Curvilinear Relation Between Perceived Agency and Communion

Following the idea that a virtuous mean flanked by the vices of insufficiency and excess (Aristotle, trans. 1999) may serve as a useful guide for psychological research (Grant & Schwartz, 2011), we sought to delineate and demonstrate that impressions of communion peak for groups, individuals, and animals that are seen as average on agency, whereas being perceived as either low or high on agency is accompanied by reduced impressions of communion. This curvilinear relation may explain why the linear relation between the Big Two has been found to be sometimes positive, sometimes orthogonal, and sometimes negative. If the relation between agency and communion is actually curvilinear such that communion peaks at average agency (as simulated in Fig. 1), sampling mostly groups that are low to average on agency would result in observing no curvilinear but instead a positive linear relation (Fig. 1, Panel 1), sampling mostly groups that are average on agency would result in observing neither a curvilinear nor a linear relation (Fig. 1, Panel 2), and sampling mostly groups that are average to high on agency would result in observing no curvilinear but instead a negative linear relation (Fig. 1, Panel 3). The actual curvilinear rather than linear relation would be observed only when the groups drawn cover the entire agency spectrum—that is, groups that range from low to high on agency. Thus, the proposed curvilinear relation between agency and communion in combination with too small, biased selections of target stimuli (e.g., restricted agency range of rated groups or individuals) may explain contradictory findings regarding the linear relation between the Big Two (for discussions of the drawbacks of biased stimulus samples, see Fiedler, 2000, 2011, 2014; Wells & Windschitl, 1999).

It could be that investigators who found evidence for consistency (i.e., a positive linear relation) between the Big Two oversampled target stimuli from the lower tail of the agency distribution (e.g., social groups that are predominantly low on agency), whereas those who found support for compensation (i.e., a negative linear relation)

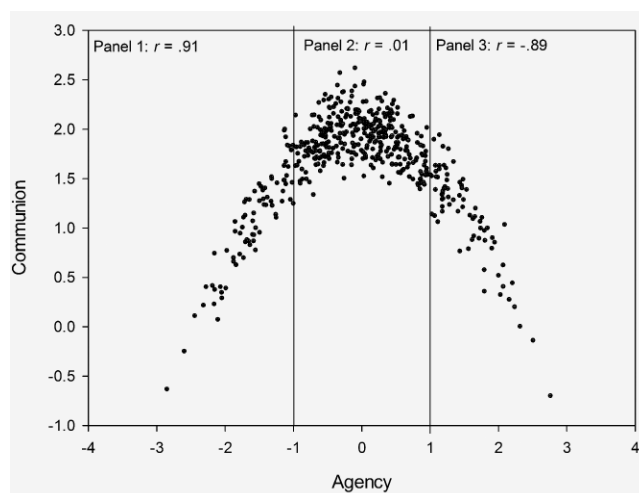


Fig. 1. Scatterplot showing relation between agency and communion. Given a curvilinear relation between perceived agency and communion (simulated data), if the agency of the observed cases mostly ranges from low to average (below -1 standard deviation [SD]), the relation between the Big Two would be positive (Panel 1). If the observed cases are centered around average agency (between -1 SD and 1 SD), the relation between agency and communion would be orthogonal (Panel 2). If the agency of the observed cases mostly ranges from average to high (above 1 SD), the relation between the Big Two would be negative (Panel 3).

between agency and communion oversampled targets from the upper tail of the agency distribution (e.g., social groups that are predominantly above average on agency). By that logic, researchers who oversampled target stimuli from the middle of the agency distribution found that the Big Two were orthogonal (and most likely never tested for curvilinear relations). Presently, we do not claim that this was clearly the case in the research we cited earlier but merely entertain the idea that part of the inconsistency in the literature could be due too narrow ranges of agency in the stimulus samples and that this stimulus-sampling explanation elegantly complements the motivational explanations (cognitive consistency for positive correlations, evaluative justice for negative correlations) outlined previously. In order for this stimulus-sampling explanation to be a valid possibility, however, agency and communion must be related in the proposed curvilinear fashion. This begs the questions whether there are theoretical arguments that support the proposed curvilinear relation.

Is there any theoretical reason to expect that entities are seen as the more communal the more average they are seen on agency? It seems reasonable that agency and communion are perceived as tied to each other via the implications agency might have for the capacity and motivation to act in a communal way. For the sake of an intellectual game, we take status and power in the social hierarchy as a relatively accessible indicator of agency

and individuals' likelihood to engage in prosocial and kind acts toward the perceiver (e.g., sharing resources and time) as an indicator of communion. People low on the social ladder (e.g., the homeless or drug addicts) might simply lack the resources and capacity to engage in acts of benevolence and kindness as they have to secure their own precarious life first. For people high on the social ladder (e.g., millionaires or successful politicians), people might infer that their low motivation to support and promote others brought them into the position of high status or that power corrupted them in the sense of increased selfishness (Dubois, Rucker, & Galinsky, 2015; Lammers, Stapel, & Galinsky, 2010) and decreased morality (Piff, Stancato, Côté, Mendoza-Denton, & Keltner, 2012; Trautmann, van de Kuilen, & Zeckhauser, 2013; for a recent overview, see Lammers, Galinsky, Dubois, & Rucker, 2015). Although such status-related differences in the motivation, respectively, the capacity to help may sound speculative, this speculation can be empirically substantiated. In an online sample, 200 participants recruited via Amazon's Mechanical Turk (sex and age were not recorded in this simple 1-min study) rated the extent to which people low, average, and high on the social ladder (presented in random order) had (a) "the opportunity and capacity" and (b) "the motivation and willingness" to "help and support others in need" on a scale ranging from *not at all* (1) to *very much* (6). As we speculated, people low on the social ladder were seen as having less capacity to act prosocially, $M = 2.74$, $SD = 1.37$, than people with average status, $M = 4.26$, $SD = 0.99$, $t(199) = 17.93$, $p < .001$, and people with high status, $M = 5.64$, $SD = 0.85$, $t(199) = 24.06$, $p < .001$. Despite this greater capacity, people on the top of the social ladder were perceived to be least motivated to act prosocially, $M = 3.25$, $SD = 1.43$, in comparison with the people in the middle range, $M = 4.20$, $SD = 1.13$, $t(199) = 8.48$, $p < .001$, and on the bottom of the social hierarchy, $M = 3.81$, $SD = 1.58$, $t(199) = 3.52$, $p = .001$. Thus, people low on agency were perceived as lacking the capacity to be communal, whereas people high on agency were perceived as lacking the motivation.

In broader terms, we could argue that the same theoretical prediction (i.e., communion peaks at average agency) can also be derived from the general principle in which evaluatively relevant information is distributed in people's ecology. For this argument, it is important to distinguish between agency as an evaluatively relevant dimension (i.e., a dimension on which different quantities have different evaluative implications) and communion as evaluation per se in the social domain. The assumption that communion can be taken as social evaluation is supported by high to almost perfect correlations, $r_s = .78-.93$, between character traits' and social groups' communion and positivity (Abele & Wojciszke, 2007; Koch, Imhoff, Dotsch, Unkelbach, & Alves, 2016;

Suitner & Maass, 2008). It should be noted that we argue that agency shows a curvilinear relation to social evaluation and that communion is social evaluation per se and therefore shows no curvilinear but only a linear relation to valence. This claim is corroborated by the fact that valence ratings for 80 representatively sampled social groups (Koch, Imhoff, et al., 2016, Study 1 and footnote 16) can be significantly predicted by the groups' communion ratings, $\beta = .72$, $p < .001$, but not by the groups' squared centered communion ratings, $\beta = -.09$, $p = .33$, if both are simultaneous predictors in a regression analysis.

To our knowledge, there is no evaluatively relevant dimension on which negative states are flanked by positive states, but there are many dimensions on which positive states are flanked by negative states of either "too little" (insufficiency) or "too much" (excess; Koch, Alves, Krüger, & Unkelbach, 2016). For example, one can be too fat, but one can also be too skinny. Some people suffer from being too short. Others have problems being too tall, whereas people of average size rarely ever think about their height. Too high amounts of adversity and stress have a negative impact on health and well-being, but the same is true for too low amounts of adversity and stress (Seery, 2011). Motivation and performance collapse if demand and arousal are too high, but the same is true for too low demand and arousal (Csikszentmihalyi, 1990; Yerkes & Dodson, 1908). Potential partners, friends, and colleagues are negative if they are too conservative or too progressive, or too stupid or too smart, or too introverted or too extraverted (Barry & Stewart, 1997).

Even characteristics that seem to have clear linear relations to positivity can be understood in this way: Although a bitter taste is commonly seen as something negative, many highly desired products have a slight bitterness to them (e.g., coffee, chocolate, olives, and liquors) that many people prefer over a plain absence of any bitter note. Likewise, intelligence, regarded by many as a trait with a clear linear relation to positivity (more is better), has often been regarded under the same reservations: Not being intelligent clearly is not good, but also being a genius has repeatedly been conflated with "disequilibrium, degeneracy, and a host of other forms of pathological nonnormativity" (Hegarty, 2007, p. 135). All these and many other evaluatively relevant dimensions, including openness, experience, complexity (Janssen, 2001; Sturman, 2003), practice, persistence, optimism, self-efficacy, self-esteem, and assertiveness (Ames & Flynn, 2007; Baumeister, Campbell, Krueger, & Vohs, 2003; Berman, Down, & Hill, 2002; Brown & Marshall, 2001; Wrosch, Scheier, Carver, & Schulz, 2007) feature Aristotle's distribution of virtuous and vicious quantities, namely a positive middle ground between the two negative extremes of insufficiency and excess (Grant & Schwartz, 2011). Thus, if agency is accepted as an evaluatively relevant dimension and communion is social

evaluation per se, communion should peak at average values of agency.

Even if the latter argument is rejected (e.g., communion is not accepted as basically evaluation in social perception), maximum communion at average agency can be predicted on the basis of the higher frequency of occurrence of average compared with extreme agency. In Western countries like the United States, agency indicators such as household income show a relatively small fraction of society being poor (around 12%), a considerably larger fraction being middle class (around 46%), and a relatively small number of persons being rich (around 5%; Beeghley, 2007). The exact numbers are subject to scholarly debate, but all authoritative propositions roughly follow the percentages we have given (e.g., Gilbert, 2002; Thompson & Hickey, 2005). Despite the fact that this distribution is typically skewed and nonnormal, it shares an important characteristic with the normal distribution: Average values are much more frequent than extreme values. This distribution allows another argument to be made as to why the relation between the Big Two should be curvilinear. If average agency is more frequent than extremely low or high agency, it is also more familiar, and familiarity has long been discussed as a cue to positivity, likeability, and communion (Zajonc, 1968; Zebrowitz, White, & Wieneke, 2008).

Entities in the middle of the agency distribution are not only more frequent but also necessarily more similar to all other entities (at least in terms of agency, one of the two fundamental dimensions of social perception) than entities at the distribution's far ends. Similarity has often been discussed as a cue for positivity,² likeability, and communion too: People like people like themselves (Klohn & Luo, 2003; Montoya, Horton, & Kirchner, 2008), because similar others reinforce the self (Fehr, 2008), satisfy people's need for logic and consistency (Byrne, 1971; Ross, Greene, & House, 1977), and are more agreeable and enjoyable friends (Cuperman & Ickes, 2009; Griffitt & Veitch, 1974) than dissimilar others. Across eight data sets, ratings of social groups' communion and their average similarity to all other groups yielded an average correlation (r) .58 between the two (Koch, Imhoff, et al., 2016).

It is conceivable that averageness, frequency, and similarity increase perceived communion and likeability via the same process. Entities that are seen as average on agency resemble the prototype of the agency dimension and may thus be easy to construe or process, increasing feelings of fluency (Winkielman, Halberstadt, Fazendeiro, & Catty, 2006). Entities that are average on agency may also be processed more fluently, because they occur more frequently and repeatedly (repetition is a standard manipulation of processing fluency; e.g., Alter & Oppenheimer, 2009; G. Rhodes, Halberstadt, & Brajkovich, 2001). Finally, being similar to many other entities may also increase

feelings of fluency (Blok & Markman, 2005), and thus entities that are seen as average on agency may also be processed more fluently, because they are more similar to other entities (at least in terms of agency).

A number of findings connect such experiential processing fluency to impressions of communion (e.g., Winkielman, Schwarz, Fazendeiro, & Reber, 2003; Zajonc, 1968). For example, people like persons with fluent, easily pronounced and read names better than persons with disfluent names (Laham, Koval, & Alter, 2012; Lick & Johnson, 2015). Fluent, frequently encountered persons are more likely to be seen as members of the ingroup than disfluent, rarely encountered persons (Claypool, Housley, Hugenberg, Bernstein, & Mackie, 2012). Also, in online economic transactions people trust fluent, easy-to-read names to a greater extent than disfluent, difficult-to-read names (Silva & Topolinski, 2016). So, the higher prototypicality, frequency, and similarity of entities that are seen as average on agency may increase perceived communion and likeability via a common process, namely, increased feelings of fluency.

In sum, the proposed curvilinear relation between agency and communion may not only explain the inconsistent evidence regarding the linear relation between the Big Two but also follows from (a) people's perception that entities with average agency have both a greater capacity and motivation to act in communal ways than entities with extreme agency; (b) the homeostatic distribution of agency information (i.e., entities can have too small, adequate, or too large amounts of agency, an ecological explanation); (c) the higher frequency, familiarity, and fluency of entities that are average compared with entities that are extreme on agency (a cognitive explanation); and (d) the higher similarity of entities that are average compared with entities that are extreme on agency (a motivational explanation). As all these explanations make the same prediction, refuting any single of these as implausible would not affect the general plausibility of our claim of a curvilinear relation between perceived agency and communion.

Evidence for a Curvilinear Relation Between Agency and Communion

The Big Two in social groups

Developing a data-driven model of stereotype content, we recently asked participants in the United States (>300 Amazon Mechanical Turk workers across two studies) and Germany ($N = 178$ former students of the University of Cologne) to generate lists of what they saw as relevant social groups. These groups then were rated by other participants regarding their (dis)similarity to one another, resulting in a two-dimensional space (via

multidimensional scaling; Borg & Groenen, 2005) in which similar and dissimilar groups were close to and distant from one another, respectively. To identify the stereotype dimensions that span this space, we asked other participants to judge the groups on candidate dimensions, including aggregate agency (i.e., power, status, dominance, wealth, confidence, and competitiveness) and aggregate communion (i.e., trustworthiness, likeability, sincerity, benevolence, altruism, and warmth).

Property fitting analyses (e.g., Rosenberg, Nelson, & Vivekananthan, 1968) established that the primary stereotype dimension was agency, followed by progressive-conservative beliefs (Koch, Imhoff, et al., 2016). Communion emerged at the center of the group space. That is, groups that were neither too high nor too low on agency and neither too progressive nor too conservative were seen as particularly trustworthy, likeable, warm, and so on. This finding is fully in line with the reasoning we have delineated: Similarity and averageness are used as cues to infer high communion, or deviance on any given dimension is used as a cue to infer low communion. The same picture emerged even when we neglected the groups' (dis)similarity ratings (i.e., the group space) and exclusively focused on the ratings of agency and communion: For four different samples of social groups, squared difference from averageness on the agency dimension (i.e., squared centered agency) correlated negatively with communion (r_s = from $-.34$ to $-.49$ for samples consisting of 42, 61, 76, and 80 social groups, all p s $< .001$) in the absence of any systematic linear correlation, $r(40) = -.03$, $p = 0.84$; $r(59) = -.10$, $p = .45$; $r(74) = .32$, $p < .01$; and $r(78) = -.01$, $p = .90$, respectively. That is, groups seen as further above or further below average on agency were seen as less communal than groups seen as average on agency.

Replication with a population-representative sample

To generalize this finding, we analyzed data from a previously unpublished study (Imhoff & Koch, 2015). Through a professional polling company, two samples of participants were recruited to match the gender and age distribution of the German population. The first sample (135 men and 128 women between the ages of 18 and 67 years, $M = 43.02$ years old, $SD = 12.95$) were given at least 5 min to freely name up to 40 social groups. The 88 groups that were named by at least 10% of the participants (e.g., academics, drug users, homosexuals, and politicians) were rated on agency (power, status, and dominance) and communion (trustworthiness, sincerity, and warmth) by other participants (82 men and 78 women between the ages of 18 and 69 years, $M = 44.43$ years old, $SD = 14.34$). Each participant rated all 88 groups

on only one of these dimensions (24–28 raters per dimension). Participants' ratings were highly consensual for all six items, intraclass correlation coefficient (2, k)s $> .90$. Averaging these ratings across participants and averaging the three agency and the three communion items provided reliable estimates of the groups' agency ($\alpha = .91$) and communion ($\alpha = .95$). The linear relation between the Big Two was positive but not significantly so, $r(86) = .20$, $p = .06$, but the curvilinear relation between the groups' communion and their squared centered agency was significantly negative, $r(86) = -.38$, $p < .001$ (see Fig. 2).³ This result suggests that groups that are consensually average on agency are perceived as much more communal than groups that are either consensually low or high on agency, replicating the results reported previously (Koch, Imhoff, et al., 2016).

Generalizing across 20+ countries

If this pattern is a robust phenomenon, it should be observable in virtually all data sets that include group ratings of agency and communion for a large number of targets. The abundant group perception literature is a valuable source here. The stereotype content model (Fiske et al., 2002) translated agency and communion into the perception of groups as warm (high on communion) and competent (similar to but not identical to high agency; Carrier, Louvet, Chauvin, & Rohmer, 2014). Within that model, appraisals of warmth follow from relations of (low) competition, whereas competence is inferred from a group's perceived status (a more proximate indicator of agency). In an ambitious effort to find cross-national support for some of the model's assumptions, researchers from more than 20 countries collected ratings of warmth, competence, competition, and status (Durante et al., 2013).

To test if the proposed curvilinear relation between groups' status (as a proxy for agency) and their warmth (as a proxy for communion) can be generalized across countries, we correlated within each country the groups' squared centered status ratings with their warmth ratings. The correlations for the 36 different samples (no status ratings for the Mexican sample) were all negative with two exceptions (Bolivia's Universidad Católica Boliviana sample and the Arab Israeli sample), suggesting that across nations social groups that were seen as either particularly high or low on status were seen as particularly cold and unlikable.

Subjecting these correlations to a meta-analysis with a continuous random effects model (OpenMeta [Analyst]; Wallace, Schmid, Lau, & Trikalinos, 2009) yielded a non-significant estimate of effect size variance, $Q_T(35) = 22.51$, $p = .949$, thus not providing evidence for variance at the level of a true effect. As the excess variation ($Q_T - df$) was

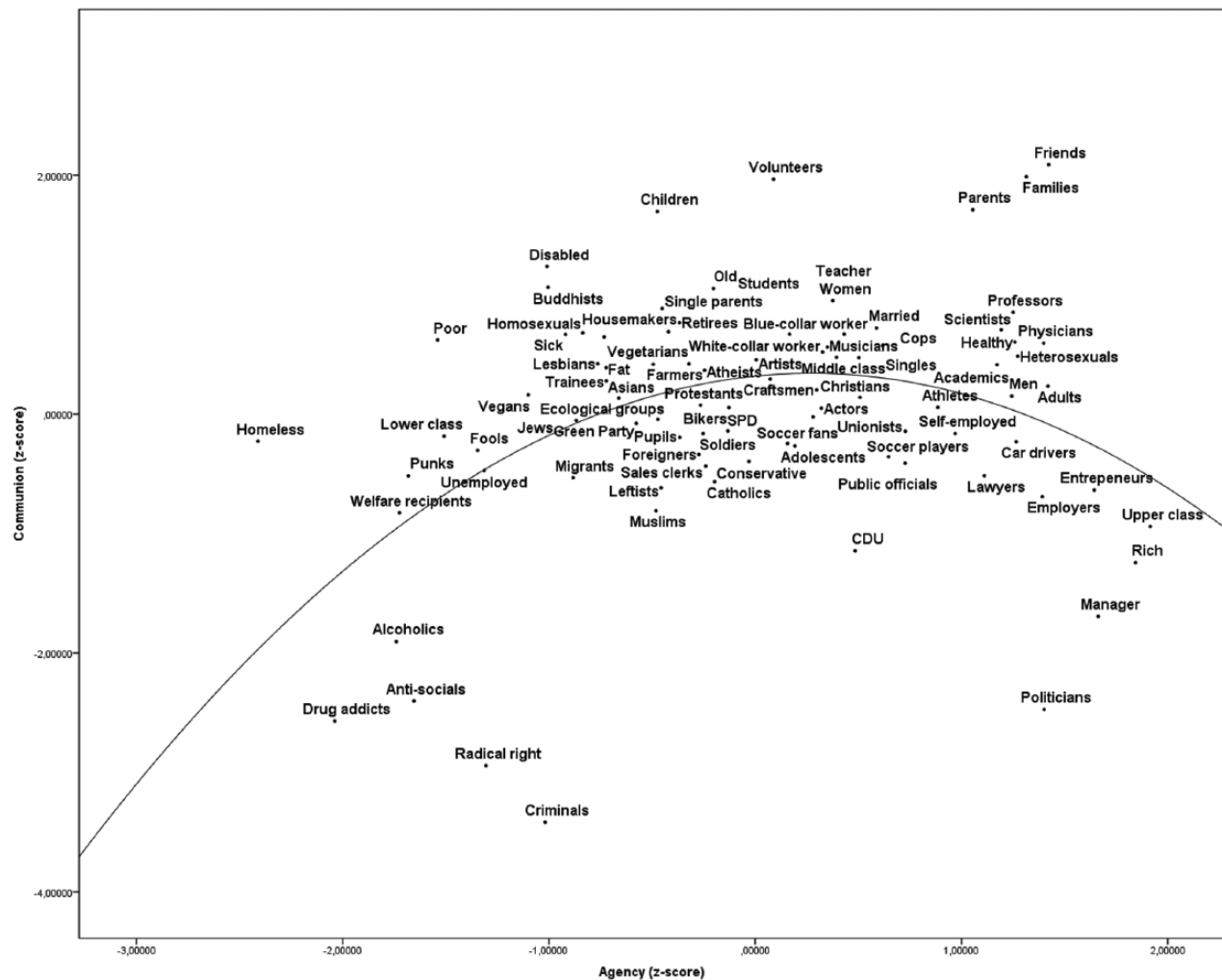


Fig. 2. Graph showing the curvilinear relation between 88 group ratings of agency (power, status, and dominance) and 88 group ratings of communion (trustworthiness, warmth, and sincerity) provided by an age- and gender-representative German participant sample. CDU = Christian Democratic Union; SPD = Social Democratic Party.

below zero, the estimated true variation (proportion of variance between studies to overall variance) between studies is zero, $I^2 = 0$. Thus, the model is identical to a fixed-effects model. This model provides support for a meta-analytic curvilinear correlation, $r(33) = -.32$, 95% confidence interval (CI) $[-0.39, -0.25]$ (see Fig. 3).⁴ In contrast to that, the linear relation, albeit meta-analytically positive and significant, $r(33) = .26$, 95% CI $[0.16, 0.36]$, was not homogeneous across samples, $Q_T(35) = 68.48$, $p < .001$, $I^2 = 48.89$. Thus, although there is evidence for both curvilinear as well as linear relations between agency and communion, the former is robust across samples, whereas the latter shows greater heterogeneity.

Curvilinearity with individual raters as cases

Arguably, these ecological correlations (resting on target groups as cases) have to be interpreted with caution

regarding individual processing (inferring individual psychological processes from aggregated data has long been debated as ecological fallacy; Piantadosi, Byar, & Green, 1988; Robinson, 1950; for a recent comment, see Kuppens & Pollet, 2014). For the previous data sets, only aggregated analyses were possible because either we had no access to individual agency and communion ratings or these two ratings were taken by different people. Thus, we re-analyzed two other data sets in which individuals rated 32 groups on both perceived power and perceived likeability (Imhoff & Bruder, 2014, Studies 3 and 4). At the level of ecological correlations (replicable with data provided in the article and under <http://imhoff.socialpsychology.org/files>), perceived power and perceived likeability were uncorrelated if looking at linear correlations; Study 3: $r(30) = .04$, $p = .83$; Study 4: $r(30) = -.09$, $p = .62$. However, ecological correlations between squared distance from the mean of rated power and rated likeability were negative; Study 3: $r(30) = -.70$, $p < .001$; Study 4:

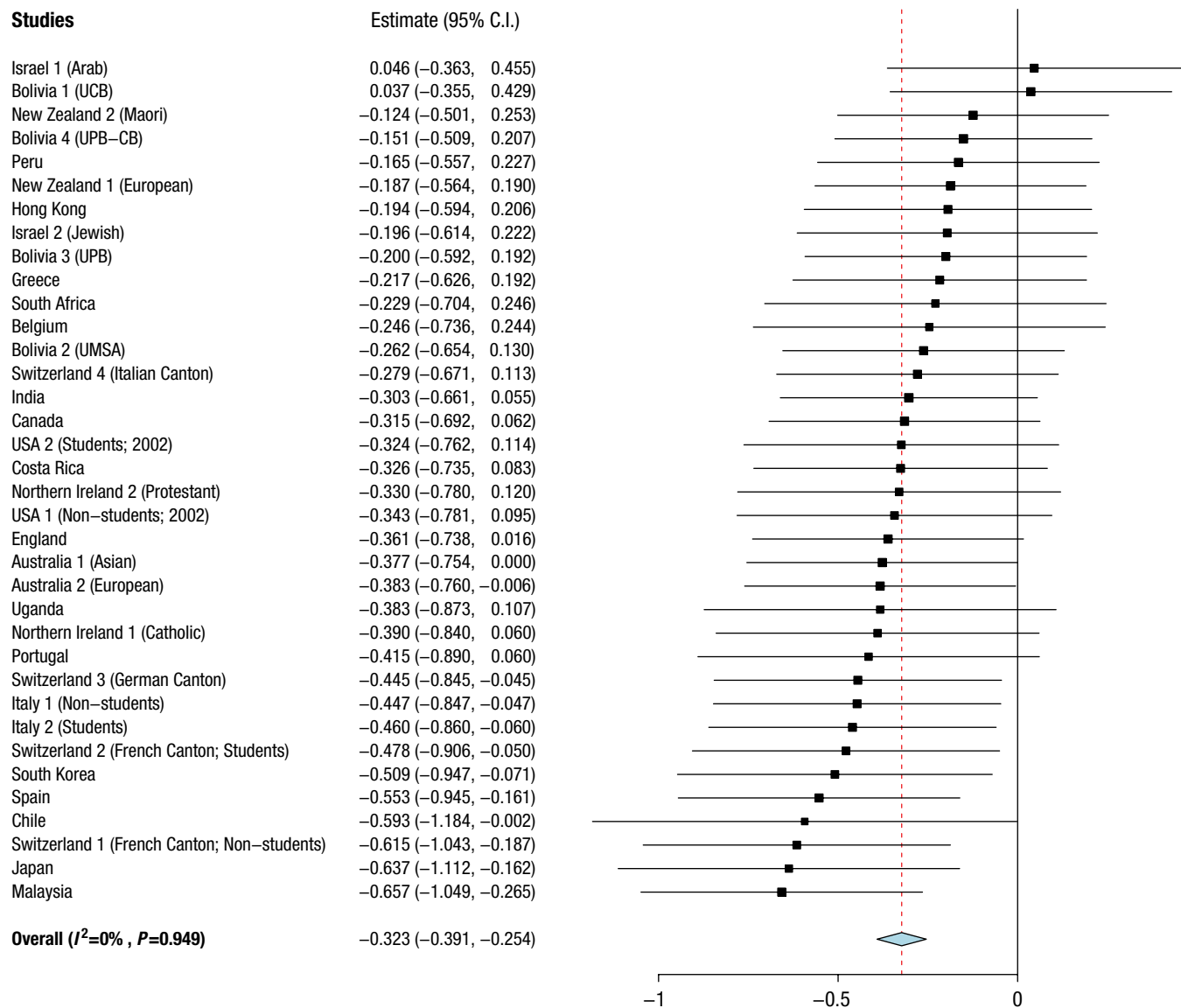


Fig. 3. Forest plot for meta-analytic correlation between squared agency (status) and communion (warmth) for 36 samples from Durante et al. (2013). The dotted line indicates the meta-analytic average effect size, the diamond indicates the overall 95% confidence interval, and the error bars indicate the individual 95% confidence intervals. UCB = Universidad Católica Boliviana; USA = United States of America; UPB–CB = Universidad Privada Boliviana-Cochabamba; UMSA = Universidad Mayor de San Andres.

$r(30) = -.76$, $p < .001$. Groups that the wisdom of the crowd perceived as average on power (a proxy for agency) also were seen as particularly likeable.

As stated previously, these data sets also allowed us to test the individual-level correlation between the Big Two. A negative intraindividual correlation between squared centered power and likeability would indicate that individuals see groups that they see as low or high on power as less likable than groups that they see as average on power. In both data sets, the distribution of this intraindividual curvilinear correlation was significantly different from zero; Study 3: $M_r = -.37$, $SD_r = 0.26$, $t(274) = -24.25$, $p < .001$, $d = -1.46$; Study 4: $M_r = -.39$, $SD_r = 0.26$,

$t(275) = -23.65$, $p < .001$, $d = -1.46$.⁵ Thus, the curvilinear relation between agency and communion reported is not an artifact of aggregation across a large number of participants, as it is found for individual participants as well.

The Big Two in individuals and animals

The previous sections showed that groups are liked less if they are either low or high on agency. This fits well with people's inclination to devalue the powerless, presumably to justify the status quo (social dominance orientation; Pratto, Sidanius, Stallworth, & Malle, 1994) and

people's distrust and wariness of groups perceived as powerful (conspiracy mentality; Imhoff, 2015; Imhoff & Bruder, 2014). However, the curvilinear relation between agency and communion should not be restricted to groups but should generalize to other entities, the most important being individuals. Revisiting a classical finding (Aronson, Willerman, & Floyd, 1966) may suggest that this is indeed the case: Target persons introduced as highly agentic (i.e., intelligent and successful) were liked more when they clumsily tipped over a cup of coffee (thereby reducing impressions of agency) than when they did not. On the contrary, a person not introduced as overly agentic was liked less if he showed the identical clumsy behavior. Thus, being leveled down from a high position on agency (and thus effectively moving closer to average agency) led to more favorable evaluations while the opposite was true for a target person from the other side of the agency distribution (who effectively moved away from the average towards the lower end).

To put this idea to a more direct test, we asked participants via Amazon's Mechanical Turk (47 men, 53 women; $M_{age} = 34.81$ years, $SD = 10.57$) to name individuals that they knew well enough to have formed an opinion of them. These could have been people participants personally knew, "celebrities, colleagues, neighbors, or persons of public interest." Participants were encouraged to use initials or nicknames as long as they used each abbreviation only once and were sure to recognize it later. They were asked to nominate people who were low, average, and high on "status, power, and dominance" (10 persons for each category; the categories were presented in random order). The majority of participants used either only first names or initials, suggesting that they chose exemplars for all three categories from their private surroundings rather than public persons. Next, participants rated (in random order) the 30 persons on a scale ranging from *cold, unlikable, and untrustworthy* (1) to *warm, likable, and trustworthy* (11). We found no support for a linear within-subject contrast, $F(1, 99) = 1.45$, $p = .23$, $\eta^2 = .01$, but clear support for a quadratic within-subject contrast of the factor agency, $F(1, 99) = 15.86$, $p < .001$, $\eta^2 = .14$. Specifically, persons seen as average on status, power, and dominance (i.e., agency) were seen as more warm, likable, and trustworthy than persons low on agency, $t(99) = 3.40$, $p = .001$, $d_z = 0.34$, and persons high on agency, $t(99) = 2.14$, $p = .035$, $d_z = 0.21$. There was no difference between persons with low and high agency, $t(99) = 1.24$, $p = .23$, $d_z = 0.12$ (see Fig. 4, left group of columns).

Arguably, people perceive their close social surroundings as average and name more friends and family members as average than as low or high on agency. The inclusion of friends and family might have inflated the perception of communion in this category. In addition, the

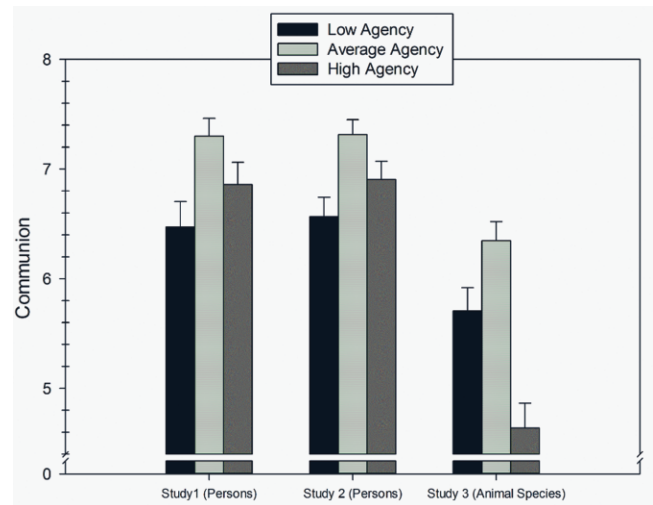


Fig. 4. Bar graphs illustrating communion of entities generated as examples of low, average, and high agency in three independent studies. Error bars indicate standard errors of the mean.

term *dominance* bears a negative connotation and thus might have deflated impressions of communion among persons perceived as high on agency. Therefore, we replicated the study ($N = 100$; 51 men, 45 women; $M_{age} = 33.50$ years, $SD = 10.14$), giving participants the instruction not to name friends or family members, and we replaced dominance with the positively connoted term *influence*. However, these changes did not alter the results. We replicated the quadratic effect of agency on communion, $F(1, 99) = 21.88$, $p < .001$, $\eta^2 = .18$, in the absence of a linear effect, $F(1, 99) = 2.47$, $p = .12$, $\eta^2 = .02$. Averagely agentic individuals were seen as more warm, likeable, and trustworthy than those low on agency, $t(99) = 4.59$, $p < .001$, $d_z = 0.46$, and high on agency, $t(99) = 2.47$, $p = .015$, $d_z = 0.35$. Persons low and high on perceived agency did not differ in perceived communion, $t(99) = 1.57$, $p = .119$, $d_z = 0.16$ (see Fig. 4, middle group of columns).

To go beyond the realm of perceiving humans, we conducted another study akin to the previous two with animal species as targets. Although the way humans interact with animal species clearly differs from their social behavior toward human groups and individuals, recent research findings have indicated that animal species are judged and categorized along the same lines as social groups: warmth and competence (Sevillano & Fiske, 2016; but see Koch, Imhoff, et al., 2016, for a critical discussion of the nature of fundamental stereotype dimensions). To test whether applying the dimensions of agency and communion to animal species would result in the same curvilinear pattern reported earlier, we asked participants ($N = 100$; 53 men, 45 women; $M_{age} = 34.60$ years, $SD = 11.28$) to freely name 10 animal species that they saw as low, average, or high on status, power, and dominance.

Afterward, participants rated how warm, likable, and trustworthy these 30 species are. Results showed a quadratic contrast, $F(1, 99) = 52.21, p < .001, \eta^2 = .35$, as well as a (substantially smaller) linear contrast of the factor agency, $F(1, 99) = 13.68, p < .001, \eta^2 = .12$. More important, animals species that were seen as neither low nor high on agency were judged as warmer than animals low on agency, $t(99) = 2.77, p = .007, d_z = 0.28$, and high on agency, $t(99) = 8.38, p < .001, d_z = 0.83$. In this study, animals low on agency were seen as warmer than highly agentic animals, $t(99) = 3.70, p < .001, d_z = 0.37$ (see Fig. 4, right group of columns).

In summary, the available data suggest that groups, individuals, and animals that are seen as powerful and dominant (i.e., agentic) are not seen as friendly and trustworthy. Likewise, groups, individuals, and animals that are seen as weak and submissive are perceived as relatively unfriendly and untrustworthy. Instead, people seem to like and trust entities that are average on agency. Social entities' perceived agency and communion are related in a curvilinear fashion at the level of both ecological and intra-individual correlations.

A New Look on the Processing Order of Agency and Communion

The presented data invite speculation about how agency and communion are processed. Most authors agreed that information about entities' communion has a processing advantage over information about their agency (e.g., Abele & Wojciszke, 2007; Ames & Bianchi, 2008; De Bruin & Van Lange, 1999; Fiske et al., 2002; Ybarra et al., 2008), presumably because the other person's (benign or malign) intention has proved more evolutionarily relevant for survival than their ability and status. People name more communion- than agency-related traits as most important, are more interested in other people's communion than their agency, and base their impression of others on a negative-positive scale mostly on communion and not so much on agency information (Wojciszke, Bazinska, & Jaworski, 1998; the latter is another example for our claim that communion is social evaluation per se and repeatedly has received empirical support; e.g., Abele & Wojciszke, 2007; Cuddy, Fiske, & Glick, 2008; De Bruin & Van Lange, 1999). Further, communion is processed faster than agency in lexical decision/valence categorization tasks (Abele & Bruckmüller, 2011, Studies 1 and 2; Ybarra, Chan, & Park, 2001); communion also is more rapidly inferred from behaviors than agency (Abele & Bruckmüller, 2011; Study 3). Finally, communion is mentioned prior to agency in descriptions of others and the self (Abele & Bruckmüller, 2011, Study 4; Uchrowski, 2008).

In contrast, the delineated and demonstrated curvilinear relation between the Big Two suggests the reversed temporal order, as processing entities' agency prior to

their communion is more parsimonious than vice versa (i.e., more consistent with the law of least mental effort; Ballé, 2002). Specifically, entities' agency informs perceivers about their communion, but entities' communion does not inform perceivers about their agency (e.g., a group that is low on communion can be either low or high on agency). Thus, there is a function that describes communion from agency, but it is impossible to formulate a function that does the reverse. In other words, processing entities' agency prior to their communion is more parsimonious than vice versa, because only one piece of information has to be processed. Consistent with a need to economize cognitive resources (Kool, McGuire, Rosen, & Botvinick, 2010), in seven studies, participants sorted and categorized groups primarily on the basis of their agency and socioeconomic success, not so much on their communion (Koch, Imhoff, et al., 2016).

Although the idea that communion is processed with priority and the notion that communion is inferred from agency seem incompatible at first, there might be ways to resolve this seeming contradiction. First, the processing advantage could be a function of available information. If someone's malign (benign) intentions are directly accessible because someone is trying to harm (help) during a competition (cooperation), communion is likely to be inferred directly—that is, independently of agency. In the absence of such salient information, high and low communion might have to be inferred from average and extreme agency, respectively. Regarding processing speed, social entities' communion might be detected faster in the first case but logically has to be detected more slowly in the second case, as agency information has to be detected before communion can be inferred.

It also is possible that our cognitive system processes direct and indirect communion information in a parallel, integrated fashion. Specifically, it could be that one part of the brain is tuned to being purely evaluative or, in other words, tuned to receive communion information, while another part is tuned to receive information about nonaverageness or deviance. In a meta-analysis of the face-perception literature, Mende-Siedlecki, Said, and Todorov (2013) recently found that more ventral amygdala portions indeed responded more strongly and more consistently to more negative or less positive faces. At the same time, more dorsal amygdala portions responded more strongly and more consistently to both more negative and more positive faces than to neutral faces. This parallel, integrated processing of valence (most akin to communion) and salience (i.e., nonaverageness or deviance on virtually any dimension) is consistent with other neuroimaging findings in humans (Davis, Johnstone, Mazzulla, Oler, & Whalen, 2010; Whalen et al., 2001) and other species (Hoffman, Gothard, Schmid, & Logothetis, 2007). Thus, it is conceivable that independent of a linear perception of valence and communion, there is a salience

detector that responds most strongly to stimuli particularly low or high on evaluatively relevant dimensions such as agency. Strong and weak activation of this salience detector thus can be used to infer low and high communion, respectively.

Salience as information

The presented data suggest that—as in face perception—salience (i.e., not being average but being deviant) per se has informational value. In the present review, we focused on the Big Two of social perception, and we have reported evidence for impressions of low communion for groups, individuals, and animals that are perceived as deviant on the agency dimension. However, it may be that such an interpretation of deviance as low communion is transferrable to other dimensions. Being too conservative or too liberal, being too self-controlled or too indulgent, and potentially even being too slim or too bulky may lead to less liking in a similar fashion, suggesting that sticking out and getting along are negatively related (Judd et al., 2005; Kervyn, Bergsieker, et al., 2012). The idea that there can be “too much of a good thing” and that positive virtues are average states, flanked by salient negative states of deficiency on one side and excess on the other side (Aristotle, trans. 1999), has indeed received considerable support across many domains (see Grant & Schwartz, 2011; for virtually all domains in management, see Pierce & Aguinis, 2013), including face perception.

Although the well-established halo effect for facial attractiveness (Feingold, 1992) would suggest that the most attractive faces also are seen as most communal, this is not true. In fact, the relation between perceived attractiveness and perceived communion is not linearly positive but curvilinear. Faces that were judged as average on the attractiveness dimension were seen as more trustworthy than faces that were saliently deviant from this average (either extremely attractive or extremely unattractive; Sofer, Dotsch, Wigboldus, & Todorov, 2015). Thus, averageness seems to be a potent cue for trustworthiness (and deviance from averageness or salience a cue to untrustworthiness) not just in the domains of group, person, and animal perception but also in the domain of face perception.

This view is further corroborated by the fact that even for completely random facial dimensions (void of any social meaning), the center of this dimension was not only seen as most typical but also most trustworthy, whereas the salient endpoints of these dimensions prompted impressions of reduced trustworthiness (Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015). Furthermore, even in newly learned environments of faces, it is not the most frequently seen faces that were perceived as most

trustworthy (which could be explained by mere exposure; Zajonc, 1968) but the most average faces (even if never displayed; Dotsch, Hassin, & Todorov, 2016). Particularly the latter finding directly offers first support that—when in direct contradiction—averageness and deviance are the more potent cues for high and low communion than high and low frequency, respectively. However, the informational ecology typically takes the shape of a bell curve in which averageness and frequency are highly confounded. In sum, in the area of face perception, too, averageness per se is an indicator of trustworthiness, which is a central component of communion.

Implications for Everyday Life

The curvilinear relation between the two basic dimensions of social perception has important implications that go beyond basic research. Clearly, being too submissive, weak, and powerless is not very positive and may provoke markedly negative social reactions as discussed in the abundant literature on social dominance (e.g., Pratto et al., 1994) and victim blaming (e.g., Lerner & Simmons, 1966). People at the bottom of the social ladder have a high risk of harvesting contempt and even disgust (Cuddy et al., 2008). However, people at the very top of the social ladder may also experience adverse reactions like envy and may be seen not only as more powerful but also as more threatening (e.g., Imhoff & Bruder, 2014). This pattern suggests that people cannot maximize impressions of both agency and communion. To a certain extent, becoming more and more agentic in all likelihood will have costs at the interpersonal level of liking and trust. It should be noted that the linear relation between perceived agency and communion should only be negative as long as agency is above average (see Fig. 1, Panel 3). For the half of the distribution below average agency, the opposite should be true: Increasing perceptions of agency should be accompanied by an increase in perceived liking and trust (see Fig. 1, Panel 1). Furthermore, as with negative compared with positive stimuli (Alves et al., 2015; Gräf & Unkelbach, 2016), because noncommunal entities occur less frequently than do communal entities and are more dissimilar to one another (Alves, Koch, & Unkelbach, 2016; Koch, Alves, et al., 2016; e.g., there are groups too low and too high on agency), entities perceived as either low or high on agency should have a memory advantage over entities that have average agency and should thus not be confused with one another compared with entities with average agency.

Conclusion

We presented an argument that perceptions of average agency imply perceptions of high communion, whereas

low or high agency both imply perceptions of low communion. This curvilinear relation between the Big Two of social perception follows from people's perception that entities with average agency have both a higher capacity and motivation to act in communal ways than do entities with extreme agency; from the principle of homeostasis (i.e., average states are positive and should be approached; both too much and too little extreme states are negative and should be avoided—an ecological explanation); from the higher frequency, familiarity, and fluency of average compared with extreme states (a cognitive explanation); and from the higher similarity of average compared with extreme states (a motivational explanation). We then presented evidence for this curvilinear relation between the Big Two: Across groups of raters and for individual raters, and for groups, individuals, and animals as rated targets, we showed that perceptions of average agency imply high communion, whereas low and high agency imply low communion. Ultimately, this finding means that people cannot be seen by others as both highly agentic (successful and powerful) and highly communal (likable and trustworthy).

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Notes

1. Please note that for the remainder of the article, when discussing agency and communion in social perception, we explicitly do not refer to agency and communion as dimensions of self-descriptions. Many of the arguments outlined here (similarity, frequency, or restricted range of target stimuli) will not hold for the phenomenon of self-perception but only for the perception of social entities other than the self.
2. A growing body of evidence shows that the reverse is true as well: Positive entities are more similar to one another and thus cluster more densely than negative entities in memory visualizations (Alves et al., 2016; Koch, Alves, et al., 2016; Unkelbach, Fiedler, Bayer, Stegmüller, & Danner, 2008).
3. A reviewer noted that a full (rather than the described half) circumplex could exist if additional social groups were added. While it is always conceivable that relevant social groups have

been overlooked in our studies and that there are social groups that score average on the agency dimension but extremely low on the communion dimension, we would argue that the arguments outlined here (similarity, frequency, and fluency) render this an unlikely occurrence. Also, in all studies mentioned up to this point, social groups were representatively sampled (nominated as relevant groups by 10% of participants) without any researcher-based constraints. Thus, even if groups exist that are seen as average on agency but at the same time untrustworthy and unfriendly, they do not seem to be considered as relevant social groups by a relevant fraction of people.

4. We found a homogeneous and almost equally strong meta-analytic curvilinear relation between groups' squared centered competence and their warmth, $Q_T(36) = 26.30, p = .882, r(34) = -.22, 95\% \text{ CI} [-0.29, -0.16]$.

5. The distribution of intraindividual linear correlations between power and likeability was not different from zero in Study 3, $M_r = -.02, SD_r = 0.34, t(274) = -0.79, p = .291, d = -0.04$, and weakly negative in Study 4, $M_r = -.06, SD_r = 0.37, t(275) = -2.72, p = .010, d = -0.16$.

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