Is Perceived Similarity More Than Assumed Similarity?

An Interpersonal Path to Seeing Similarity Between Self and Others

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Abstract

People perceive similarity between their own personality characteristics and the personality characteristics of others. This association has sometimes been labeled “assumed similarity,” reflecting the interpretation that it is a cognitive bias. Another possibility, however, is an interpersonal path to perceived similarity: personality traits that are manifested in behavior may elicit similar or dissimilar behavior from others, and people form perceptions based on what they have elicited. Drawing on theories of interpersonal perception and interpersonal theory, we proposed and tested for evidence of such *perceiver-elicited similarity* effects, as well as trait and state assumed similarity. Previously unacquainted participants ($N = 322$) completed personality assessments, interacted in dyads the next day, and then reported perceptions of each other’s personalities. The results showed broad support for the expression and accurate perceptions of most Big Five domains and facets. The preregistered directional hypotheses for behavior elicitation and perceiver-elicited similarity were supported for 3 of 5 traits. Participants interpersonally elicited and then accurately perceived similarity in sociability and openness, and dissimilarity in assertiveness. We also found evidence for assumed similarity for agreeableness and energy level, but participants did not elicit similar behavior from their partners for those traits. We discuss implications for treating perceived similarity as a dynamic, multicomponent phenomenon, and the possibility that assumed similarity emerges from the repeated experience of interpersonally elicited and perceived similarity.

Keywords: interpersonal perception; assumed similarity; interpersonal theory; reciprocity; personality

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Across personality characteristics, people judge others to be more similar to their own unique characteristics than they actually are (Beer & Watson, 2008; Cronbach, 1955; Human & Biesanz, 2011; Kenny, 1994; Lee et al., 2009; Ready et al., 2000; Srivastava et al., 2010). This tendency has been termed *assumed similarity*, reflecting the interpretation that it is a cognitive bias that occurs within the mind of the perceiver. However, cognitive biases are not the only possible explanation for correlations between judgments of self and judgments of others. The present work looks to broaden the interpretation of such correlations. We propose that similarity between perceptions of self and others arises through multiple processes. This includes the processes that are traditionally called assumed similarity. Critically, however, it may also include an interpersonal mechanism in which perceivers elicit similar or dissimilar behavior from targets and then perceive what they have elicited.

We begin by reviewing current models and evidence for assumed similarity. Next, we review theoretical accounts of the reciprocal nature of interpersonal behavior, which suggest that traits expressed in behavior can influence the behavior of an interaction partner. We introduce a novel model of interpersonal perception that draws from personality and behavioral research and interpersonal theory to define both intrapsychic and interpersonal contributions to perceived similarity. We then report the results of a study we conducted to estimate those contributions. Finally, we discuss the implications of our findings, including how they might lead to a better understanding of the development of assumed similarity.

From Assumed Similarity to Perceived Similarity

The association between an individual's own personality and their judgments of others is well established across a broad range of individual differences (Beer & Watson, 2008; Kenny & Kashy, 1994; Lee et al., 2009; Srivastava et al., 2010; Watson et al., 2000). The ubiquitous nature of these associations initially led to speculation that they were caused by actual similarity. However, Human and Biesanz (2011) used the social accuracy model (Biesanz, 2010) to control for actual similarity and still found evidence of an association, demonstrating that it is a unique phenomenon separable from actual similarity (Human & Biesanz, 2011; Ready et al., 2000).

One commonly used term for these associations is *assumed similarity* (Cronbach, 1955; Kenny, 1994; Thielman et al., 2020); other labels have included *similarity projection* (Campbell et al., 1964) and the *self-based heuristic* (Ready et al., 2000). These labels reflect the common interpretation that the correlation arises from an internal process inside the minds of perceivers.¹ Previous work has used different research designs and analytic strategies to investigate these processes. One common approach is to test for correlations between ratings of the self and ratings of others. For example, Ready and colleagues (2000) proposed that when a perceiver's knowledge of a target is restricted due to low trait visibility or minimal interpersonal contact, the perceiver uses self-knowledge to fill in unknown information about another's personality with known information about their own personality. They tested this hypothesis by calculating the correlations between self and other report among well-acquainted participants, with actual

¹ In principle, a definitional distinction can be made between similarity to the perceiver's actual personality vs. similarity to the perceiver's self-perception. There are examples of researchers using both definitions of assumed similarity (Human & Biesanz, 2011). Because self-perceptions are typically correlated with other measures of personality, when the "self" variable is operationalized with only a single method (e.g., only self-report or only observer-report) it is not possible to distinguish between these two accounts empirically.

similarity partialled out. Using this approach, they found broad support for assumed similarity across fifteen measured personality traits. Lee et al. (2009) used a similar approach and found evidence of assumed similarity for openness and honesty-humility. However, more recent work suggests that it is not information driving perceptions of assumed similarity but instead personal values (Thielmann et al., 2020)

Another approach to studying assumed similarity has been to use the Social Relations Model (Kenny, 1994). The SRM decomposes the variance in interpersonal perceptions into multiple components, and it is used in studies that employ a block or round-robin design. In these designs, participants interact in pairs or groups, and afterwards they all make judgments of everyone they interacted with. The SRM analysis capitalizes on these multiple judgments to provide more precise estimates of effects. In the SRM, assumed similarity is calculated as the correlation between participants' own scores on a personality trait and their perceiver effects, which reflect an average of how they see others on the trait. Studies employing round robin designs and an SRM analysis provide substantial support for assumed similarity (Kenny, 1994). They have also shown that assumed similarity reflects trait-specific content, not just global positive evaluation (Srivastava et al., 2010).

A third approach has been to examine assumed similarity with the Social Accuracy Model, which combines different traits into a single analysis of agreement across a profile (Human & Biesanz, 2011). There is evidence from multiple studies using this approach to support assumed similarity in personality profiles (Human & Biesanz, 2011; Human & Biesanz, 2012). In addition, well-adjusted individuals show a stronger assumed similarity effect than less well-adjusted individuals (Human & Biesanz, 2011), suggesting that overestimating similarity in others is an adaptive phenomenon.

Despite the numerous conceptual and analytical differences in these approaches, they all conceptualize assumed similarity as an intrapsychic phenomenon in which a perceiver's pre-existing, stable sense of self affects how they see others. However, in studies where perceivers and targets interact, as well as in the uncontrolled world outside of the lab, it is possible that perceivers' personalities can influence targets' actual behavior. What these studies have definitively shown is *perceived similarity*: perceivers see others in similar ways as they see themselves. But we propose that the traditional assumed similarity interpretation is incomplete. The present study tests the hypothesis that perceived similarity is a dynamic, multicomponent phenomenon, which includes both assumed similarity and an interpersonal path to perceived similarity.

Toward a Dynamic Model of Perceived Similarity

Early work on social projection by Campbell et al. (1964) discussed several processes that can affect the correlation between a perceiver's personality and their perceptions of others' traits. A process that the researchers labeled *similarity projection* corresponds to the contemporary intrapsychic account of assumed similarity, in which people presume that others' personalities are similar to their own. In *complementarity projection*, people attribute to others traits that explain or justify their views of themselves, which sometimes may be similar and sometimes may be different than how they see themselves. To use two examples of complementarity projection suggested by Campbell et al. (1964), a hostile person might assume that others are hostile, justifying their own hostility toward others; but a bossy person might assume others are incapable, justifying their own bossiness. Both similarity and complementarity projection are intrapsychic phenomena grounded in social-cognitive processes.

Additionally, Campbell et al. (1964) discussed the possibility of what they termed *reactivity*, which is an interpersonal phenomenon. Reactivity is the process by which the perceiver's personality characteristics are expressed in behavior that then systematically elicits behaviors from interaction partners, which are then perceived and used to form trait judgments. Campbell et al. (1964) collected self- and other-reports from participants who knew each other, similar to other studies, as well as ratings of photographs. They looked for indirect evidence of reactivity in patterns of correlations, concluding that the evidence was equivocal. However, they did not study actual interactions between perceivers and targets in which reactivity processes could occur. Such processes are a central focus of the present investigation.

Interpersonal processes that affect the correlations between traits and perceptions of others do not necessarily need to be in the direction of similarity. The principle of complementarity from interpersonal theory provides guidance on when we should expect the elicited behavior to be in the same or opposite direction from the perceiver's own trait level (Carson, 1969; Kiesler 1983). In interpersonal theory (Leary, 1957; Sullivan, 1953), interpersonal behavior is organized into a circumplex model with two orthogonal dimensions: dominance and affiliation. Each of these dimensions is bipolar. Behavior in the dominance domain ranges from dominant to submissive, and in the affiliation domain from warm to cold. Within this framework, the principle of complementarity (Carson, 1969; Hopwood et al., 2019; Kiesler, 1983) outlines specific and systematic ways that behavior expressed along each of these dimensions influences the behavior expressed by an interaction partner. The principle of complementarity posits that behavior expressed in the dominance domain tends to elicit opposite behavior (i.e., dominant behavior will elicit submissive behavior and submissive behavior will elicit dominant behavior from others), and behavior expressed in the affiliation domain elicits

similar behavior (i.e., warmth will elicit matching warm behavior and a person expressing cold behavior will elicit matching cold behavior; Carson, 1969; Kiesler, 1983).

The principle of complementarity is supported by empirical work showing that people elicit behavior from others based on their own personality (Markey et al., 2003; Locke & Sadler, 2007; Sadler et al., 2009; Sadler & Woody, 2003). Complementarity can be studied at several levels, including in relationships (Kiesler & Watkins, 1968) and from moment-to-moment (Sadler et al., 2009; Thomas et al., 2014), but the focus of the present work is at the level of a single interaction (Sadler & Woody, 2003). For example, Sadler and Woody (2003) had mixed sex dyads complete a collaborative task where the dyad was asked to reach a decision together. After completing the task, the participants rated each other's dominance and affiliation. Personality characteristics predicted the expression of behavior during the interaction, and the behavior expressed by one interactant influenced the expression of traits in behavior by the other, as predicted by the principle of complementarity. In a separate model, Sadler and Woody (2003) examined the relationship among traits, states, and perceptions, showing that a perceiver's own personality influences their perception of an interaction in two ways. First, in line with the traditional static conception of assumed similarity, the perceiver's stable personality partially informed their impressions of others (trait assumed similarity). Second, the perceiver's stable personality influenced their perception of their own behavior during an interaction (Sadler & Woody, 2003). However, they did not examine the effect of behavior elicitation on perceptions.

We propose that incorporating the three personality and social processes involved in forming impressions of others into one theoretical model will provide a clearer understanding of the intrapsychic *and* interpersonal mechanisms of perceived similarity. The central hypothesis of the present investigation is this: if a perceiver's personality systematically elicits behavior from

their partner, and the perceiver uses the behavior expressed by an interaction partner to inform their impressions, it follows that people, through the systematic elicitation of behavior from others, can interpersonally influence their own perceptions of other people.

This idea – that people might form trait impressions based on behavior that they elicit from others – marries concepts from two influential models of personality. First is the density distributions conception of traits, in which an individual's standing on a personality trait dimension is reconceptualized as a distribution of states rather than a single, static value (Fleeson, 2001; Fleeson & Jayawickreme, 2015). Traditional personality trait measures produce a single number that reflects the central tendency of an individual's behavior, but in addition, people vary around that central tendency from moment to moment. Thus, someone who is moderately extraverted on average can nevertheless behave in a more or less extraverted way as a function of their proximal situation. In the case of elicitation processes, a critical element of the situation is the personality of an interaction partner. Second is the Realistic Accuracy Model (RAM) of interpersonal perception (Funder, 1995). According to RAM, people form accurate judgments of personality when trait-relevant cues are available to a perceiver and the perceiver detects and utilizes them. Bring these two models together, and when an elicitation process shifts someone's personality state, the available cues will shift accordingly and lead to a corresponding shift in personality judgments.

For an illustration of how perceived similarity arises from these interpersonal processes, consider a first interaction between Alice and Bob. Alice is typically highly sociable, and Bob is typically more reserved, but both are capable of some flexibility across situations. Both start out behaving as their typical selves, but during the interaction, mutual elicitation processes move both of them toward each other's expressed traits: Alice draws out more extraverted behavior

from Bob than he typically expresses, and Bob draws out more introverted behavior from Alice than she typically expresses. This interpersonal influence on personality states changes the relevant cues that Alice and Bob can draw upon to form impressions of each other. Both detect and utilize the cues that are available in the interaction, leading Alice to form an impression of Bob as being more extraverted than he typically is, and Bob to form an impression of Alice as less extraverted. This process represents the interpersonal path to perceived similarity.

Dynamic Perception Model (Figure 1)

To estimate different contributions to perceived similarity, including interpersonal dynamics between perceivers and targets, we introduce the *dynamic perception model* (DPM) of interpersonal perception, depicted in Figure 1. This model builds on the mutual influence and actor-partner interdependence models (Kenny, 1996) by including measurements at three points in the process of forming impressions during a first social interaction between two people. The DPM includes a measure of pre-existing traits (what individuals bring to the interaction); a measure of states (the behavior expressed during the interaction); and a measure of perceptions (the perceiver's judgments of the target). Modeling the interaction in this way allowed us to model three theoretically based processes – *trait expression*, *behavior elicitation*, and *circumscribed accuracy* – involved in forming impressions. It also enabled us to decompose perceived similarity into three components – *trait assumed similarity*, *state assumed similarity*, and *perceiver-elicited similarity* – each representing a distinct way a perceiver's personality can influence their perceptions of others (see Table 1).

Table 1

Terminology in the Dynamic perception Model

Term (DPM Path)	Conceptual Definition	Operational Definition within DPM	Associated Terms
Trait Expression (<i>a</i>)	Expression of stable personality characteristics in behavior	The association between self-reported traits and coded behavioral expression	Behavior
Behavior Elicitation (<i>b</i>)	Mutual influence of interactants on the behavior expressed by each other	The reciprocal effect of coded behavior on the coded behavior of an interaction partner	Complementarity, reciprocity
Circumscribed accuracy (<i>c</i>)	Accurate perception of personality expressed in circumscribed behavior	The association between the coded behavior of one interactant and the other's perception	Accuracy, realistic perception
Trait Assumed Similarity (<i>d</i>)	Association between an individual's stable personality traits and their perceptions of the personality traits of others—not accounted for by observed behavior	The association between self-reported traits and perceptions of others, controlling for behavior	Assumed similarity Similarity Projection Self-based Heuristic
State assumed Similarity (<i>e</i>)	Association between expressed behavior and perceptions of others	The association between the coded behavior of an interactant and their perception of the other interactant	
Perceiver-elicited (Dis)Similarity ($a*b*c$)	Perceptions of similarity or dissimilarity in others based on the elicitation of similar or dissimilar behavior from others	The double-mediated path from trait to mutually influenced behavior to perception	Reactivity

The DPM extends previous models of interpersonal perception by including the effects of both traits and behavior on perceptions. However, it does not include all of the complexities of interpersonal perception. For example, complementarity suggests that each person's behavior influences the other's and they become systematically coordinated (Sadler et al., 2009), a process that could plausibly be mediated by interim personality perceptions inside the loop between behaviors in the DPM (see Hopwood et al., 2019). The present work aims to understand the effect of dynamically elicited behavior on the final perceptions people have of one another after an interaction has concluded. The DPM excludes some of these complexities and is better

thought of as a theoretically-informed analytic model, but not a complete theoretical model *per se*.

Figure 1. The Dynamic Perception Model (DPM) of interpersonal perception depicts the flow of information from personality traits to perception (*a, b, c*) and decomposes perceived similarity into three components (*d, e, $a*b*c$*).

The DPM (Figure 1) includes three paths (*a, b, c*) that represent the flow of information from the personality characteristics that people bring to the interaction to the impressions they form of one another, which we label trait expression, behavior elicitation, and circumscribed accuracy.

Trait expression (path a). The first process in the formation of interpersonal perceptions is the expression of stable personality characteristics via behavioral cues. Specifically, an

individual will produce certain behaviors as a consequence of their mean-level on a particular trait. We have operationalized personality traits through self-reports collected prior to the interaction. With regard to behavior, there is evidence that personality manifests in specific interpersonal micro-behaviors, such as handshakes (Chaplin et al., 2000), but most work in this area focuses on the manifestation of personality in social behavior at the psychologically meaningful level (Funder et al., 2000; Furr, 2009; Furr & Funder, 2007; Furr et al., 2009). Therefore, although behavior can be construed at different levels, in this work the term behavior is used to refer to the more macro-level expression of personality in behaviors that can be detected and rated by trained observers. Mean-level personality traits predict everyday behavior consistently across multiple situational conditions (Funder & Colvin, 1991; Funder & Sneed, 1993; Furr & Funder, 2004).

Behavior elicitation (path b). The second process, behavior elicitation, is the mutual influence of the interactants on the behavior expressed by each other. These interpersonal effects are represented in the model with the reciprocal paths (*b*) between the expressed behavior of the participants. As outlined above, the inclusion of these paths is supported by evidence from interpersonal theory and is based on the systematic elicitation of behavior outlined by the principle of complementarity (Carson, 1969; Kiesler, 1983; Sadler & Woody, 2003).

Circumscribed accuracy (path c). Paths (*a*) and (*b*) both affect individuals' behaviors in the interaction, which become the available cues for them to form impressions of one another. Path (*c*) reflects the detection and utilization of those available cues to form trait perceptions. Such a correspondence between a perceiver's trait judgments and the behavior available to the perceiver was termed *circumscribed accuracy* by Swann (1984). It is necessary, but not sufficient, for *global accuracy* – a correspondence with a target's general behavioral tendencies.

Taking a distributional approach to personality, circumscribed accuracy would mean that personality perceptions correspond to the target's personality state when a perceiver is present, and global accuracy would mean that perceptions correspond to the target's central tendency. Previous research has shown that global accuracy is sometimes higher and sometimes lower for different traits in different contexts, but it is typically nontrivial in magnitude (Connelly & Ones, 2010), suggesting that circumscribed accuracy paths are likely to be nontrivial as well.

Perceived similarities. Perceived similarity, broadly, is the association between a perceiver's own personality characteristics and their perceptions of others. In developing the theoretical DPM, we decomposed perceived similarity into three components by testing the different ways that a person's personality characteristics may propagate to their perceptions of others. Two of these influences are intrapsychic, *trait assumed similarity*, *state assumed similarity*, and the third is interpersonal, *perceiver-elicited similarity*.

Trait assumed similarity (path d). Trait assumed similarity represents the traditional, intrapsychic conception of assumed similarity as a relationship between a perceiver's pre-existing traits and their perception of a target, independent of actual similarity or of what occurs during the interaction. In the DPM, this is represented by a path from pre-existing traits to perceptions while controlling for the behavior of both participants.

State assumed similarity (path e). This path represents the possibility that the behavior expressed by a perceiver during an interaction might influence their perception of an interaction partner. In the DPM, this path represents the hypothesis that a perceiver's own behavior during an interaction influences their perception of others. Although state assumed similarity is based on behavior that is expressed in an interaction with another person, it reflects a correspondence

between a perception and the perceiver's own behavior while controlling for the partner's behavior, and thus it is not fundamentally interpersonal in nature.

Perceiver-elicited (dis)similarity (path $a*b*c$). Evidence from personality and behavioral research shows that an individual's unique characteristics are expressed in behavior, and evidence from interpersonal theory shows that the expressed behavior of one interactant systematically influences behavior expressed by an interaction partner. Further, these affected cues are observed and used to inform judgments of personality. This double-mediated, compound path in the DPM ($a*b*c$), represents that a perceiver interpersonally influences their perceptions of others through the expression of their unique characteristics, elicitation of complementary behavior from an interaction partner, and accurate perception of expressed behavior.

Present research

In the present research we studied pairs of participants who met for the first time in the lab and worked together for 20 minutes on a task. We measured personality traits through self-reports collected at least a day prior to participants meeting one another, behavioral states through coding video recordings of the interaction, and interpersonal perceptions through partner reports collected after the interaction. We then analyzed the data using the DPM in order to estimate its parameters and test a number of hypotheses about the dynamic formation of interpersonal perceptions and the propagation of a perceiver's personality characteristics into their perceptions of others. We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study (Simmons et al., 2012).

Preregistered hypothesis tests. We preregistered a number of specific predictions based on prior theory (<https://osf.io/qp86r/>).²

For Big Five agreeableness, we preregistered hypotheses that trait expression (path *a* of the DPM), behavior elicitation (path *b*), circumscribed accuracy (path *c*), trait assumed similarity (path *d*), and perceiver-elicited similarity (the double-mediated path $a*b*c$) would all be positive. (The preregistered DPM included a state assumed similarity effect, path *e*, as part of the model, but we did not make any specific predictions for this path for any trait or facet.) The preregistration focused on agreeableness because of previous research by Sadler and Woody (2003), which tested hypotheses based on interpersonal theory. Among the Big Five domains, agreeableness most closely corresponds to the affiliation dimension within interpersonal theory (Barford et al., 2015; McCrae & Costa, 1989; DeYoung et al., 2013). We also preregistered a plan to run a DPM on the same affiliation and dominance scales used by Sadler and Woody (2003).

For Big Five extraversion, we preregistered different predictions for different facets. For the sociability and energy level facets, we made all of the same directional predictions for all paths as for agreeableness. However, the assertiveness facet of extraversion is most closely associated with the dominance dimension in interpersonal theory (McCrae & Costa, 1989; DeYoung et al., 2013), for which behavioral elicitation is theorized to go in the opposite direction: dominant behavior elicits submissive behavior and vice versa. On this basis we predicted that for assertiveness, the behavior elicitation, path *b*, would be negative.

² In the preregistration, we used different letters for the paths of the DPM. We changed the labels in order to make the exposition in this manuscript clearer (the new labels for the paths follow the order of presentation here); but readers should be aware of this change when referring to the preregistration.

For Big Five openness, the prior theory was not as strong as for the traits associated with the interpersonal circumplex. However, based on the nature of the task, which involved participants discussing and judging artwork together, we preregistered a hypothesis that we might see positive effects across the DPM for openness.

We also preregistered a plan to run the DPM for neuroticism and conscientiousness. Although some of the effects within the DPM are plausible for these traits, we did not have strong theory-based predictions about behavior elicitation, which was part of the central hypothesis of this study. As a result, the preregistration presented those as planned but exploratory analyses.

The preregistration did not address analyses of any other Big Five facets aside from the extraversion facets. It also did not address analyses for the interpersonal theory-based dominance measure. We report results from non-preregistered DPMs for all of those variables here to provide a more complete picture.³

Method

This study was approved by the University of Oregon institutional review board (title: “Interpersonal Pathway to Assumed Similarity”; protocol number: 01022017.001). Prior to collecting data, we preregistered the methods, materials, sampling plan, exclusion criteria, and analysis plan, as well as the hypotheses outlined above (<https://osf.io/qp86r/>).

Participants

³ We also preregistered and collected data on whether perceptions of agreeableness after the interaction would affect decisions in two economic games, a prisoners’ dilemma and a dictator game. We observed very low variance in these measures: nearly everyone chose the cooperation option in the prisoner’s dilemma and the 50-50 split in the dictator game. On that basis we concluded they were a poor empirical test and have omitted them from the main report to save space. For transparency, we report those results in a supplement.

Prior to data collection we conducted a power analysis by running simulations of the DPM using the *simsem* package (Version 0.5-22; Jorgensen et al., 2016) in R (Version 3.3.2; R Core Team, 2016). For the power analysis we used effect estimates from prior literature to develop conservative but realistic estimates of plausible and substantively meaningful effect sizes we wanted to be able to detect. We concluded that we needed to collect data from at least 160 dyads ($N = 320$) to achieve 90% statistical power to detect a small compound double-mediation perceiver-elicited similarity effect ($a*b*c = .02$) at an $\alpha = .05$, one-tailed.

We recruited 374 participants from the University of Oregon human subjects pool who participated in 187 dyads. Following the preregistered plan, eleven dyads were excluded from analysis because they had a preexisting relationship. We made an additional decision to exclude two dyads where a participant brought an emotional support animal to the study, which changed the character of the interaction. We excluded 13 dyads because at least one member of the dyad did not complete the self-report trait survey prior to the interaction.⁴ The final sample for analyses consisted of $N = 322$ individuals ($M_{age} = 20$, $SD = 4$; 63% women; 64% White, 11% Asian, 10% Hispanic, 2% Black, and the other 13% selected other or multiple responses) nested in 161 dyads (63 both women, 20 both men, and 78 mixed-gender). Based on previous work that has not found gender differences in the expression or elicitation of behavior (Sadler & Woody, 2003) and the lack of theory to support hypotheses about gender differences in the processes investigated, we treat all dyads as indistinguishable.

⁴ The preregistration states that the analyses will exclude data from participants who were noncompliant, but it also states that analyses will include cases with missing data. Our intent was to include participants who attended both sessions but skipped items. While running the study, we treated participants who skipped the online session as noncompliant and cancelled their in-lab sessions when we caught them in time. These 13 participants were not detected until after the in-lab sessions, but consistent with both the preregistered plan and the ongoing practice while collecting data, we treated them as exclusions and never analyzed their data.

Procedure

To minimize overlap in ratings, we used a multi-rater, multimethod approach, using a mixture of self-reports, trained coders, and partner reports. The initial self-report ratings of traits were collected a minimum of one day prior to the in-lab interaction. This provided temporal separation between the self-reported trait ratings and both the state and perception ratings.

After both participants arrived at the lab and provided informed consent in a private room, they were brought together to take part in an art gallery task (adapted from Chen, et al., 2009). The two participants were seated on the same side of a long table, each with 10 face-down 8" x 11" images of paintings in front of them. There were two video cameras mounted on the ceiling in corners of the room, one focused on each participant. Video recording began prior to the participants entering the room and was not stopped until after they had completed the task and exited the room. Participants were made aware during informed consent that they would be recorded.

Seated together at the table, participants received verbal instructions for the art gallery task from an experimenter. During the task, participants assumed the roles of co-managers of an art gallery and were given 20 minutes to select three of the 20 paintings to hang in the gallery. They were instructed to take turns flipping over one painting at a time, discussing what they liked or did not like about the painting, and then to give their interaction partner an opportunity to say what they liked or did not like about the painting. After discussing each of the 20 paintings, they were to use any criteria they chose to select three paintings. To motivate engagement in the task and encourage participants to express their opinions, including disagreements, we told the participants that there was a \$100 prize for the team that selected the "best" three paintings.

In order to ensure that participants completed the task, after 15 minutes the experimenter opened the door and instructed the participants to turn over any remaining paintings and discuss them briefly before beginning final deliberations. When there was one minute remaining, the experimenter knocked on the door to notify the participants to make their final decision. Participants who informed the experimenter that they had completed the task prior to the 20 minutes were told that the next part of the study was not ready and asked to return to the room and further discuss the paintings or talk about whatever they would like. All dyads spent 20 minutes together.

After completing the art gallery task, each participant returned to a private room and provided perception judgments of their interaction partner. After the experiment was over, participants were told that all selections were equally valid, and the winners would be selected at random to win the prize.

Measures

We measured personality and social behavior in three contexts in this study: trait, state, and perception. In each context, a different rater assessed the target. This section summarizes the internal consistency estimates of reliability of these measures in each context. We report complete descriptive and reliability statistics in Table 2.

Self-reported traits and interpersonal behavior. Prior to arriving at the lab, participants completed self-reports of their personalities using the Big Five Inventory 2 (BFI-2; Soto & John, 2017). The BFI-2 contains 60 items. Participants indicate agreement with these items using a 5-point Likert scale anchored at 1-strongly disagree and 5-strongly agree. The items can be scored into five 12-item scales representing the broad Big Five domains. It can also be scored as 15 4-item scales representing the more granular facets (three per domain). Each

domain and facet scale has a balanced key. Scale scores were calculated by reverse scoring and averaging the corresponding domain and facet items. The scales showed good internal consistency at the domain level (all $\alpha > .75$) and good or marginal internal consistency at the facet level (all α s $> .60$) with one exception, the compassion facet of Agreeableness ($\alpha = .45$). Complete internal consistency statistics are reported in Table 2. Evidence for validity is presented in Soto and John (2017)

To replicate and extend Sadler and Woody (2003), we measured interpersonal style with the Social Behavior Inventory (SBI; Moskowitz, 1994). The SBI contains 46 items, and participants indicated agreement with the items on a scale anchored at 1-never and 6-almost always. The inventory is organized into four subscales, dominance, submissiveness, agreeableness, and quarrelsomeness, which are scored by averaging the items associated with each subscale. Further, to obtain the domain scores of interest, dominance and affiliation, we subtracted the submissiveness subscale from the dominance subscale and the quarrelsomeness subscale from the agreeableness subscale, respectively. The self-report SBI also showed adequate internal consistency among the subscales, with all $\alpha > .75$.

Table 2

Means, standard deviations, and reliability for trait, state, and perception measures of the BFI-2 domains and facets. For coded state ratings we also report ICC as a measure of inter-rater reliability.

Domain <i>facet</i>	Trait			State				Perception		
	<i>Mean</i>	<i>SD</i>	<i>alpha</i>	<i>Mean</i>	<i>SD</i>	<i>alpha</i>	<i>ICC</i>	<i>Mean</i>	<i>SD</i>	<i>alpha</i>
Agreeableness	3.76	0.55	.76	3.68	0.42	.88	.82	3.98	0.43	.79
<i>compassion</i>	3.90	0.69	.45	3.52	0.48	.79	.84	3.83	0.52	.36
<i>respect</i>	4.06	0.64	.61	3.77	0.52	.81	.79	4.42	0.50	.72
<i>trust</i>	3.32	0.74	.64	3.76	0.40	.69	.68	3.70	0.54	.62
Extraversion	3.31	0.69	.84	3.13	0.65	.92	.96	3.21	0.69	.89
<i>sociability</i>	3.12	0.98	.83	3.27	0.82	.92	.95	3.27	0.94	.87
<i>assertiveness</i>	3.17	0.86	.76	3.12	0.64	.81	.92	2.92	0.75	.76
<i>energy level</i>	3.64	0.77	.67	2.99	0.70	.83	.95	3.44	0.73	.72
Open-mindedness	3.72	0.64	.82	3.09	0.52	.91	.89	3.57	0.63	.87
<i>intellectual curiosity</i>	3.88	0.72	.66	3.04	0.56	.78	.86	3.57	0.69	.65
<i>aesthetic sensitivity</i>	3.59	0.91	.73	3.19	0.58	.85	.86	3.41	0.83	.77
<i>creative imagination</i>	3.69	0.76	.72	3.03	0.54	.81	.81	3.73	0.67	.75
Conscientiousness	3.51	0.64	.84	3.86	0.30	.83	.78	3.86	0.49	.83
<i>organization</i>	3.12	0.98	.83	3.27	0.82	.92	.95	3.27	0.94	.87
<i>productivity</i>	3.32	0.76	.71	4.06	0.32	.70	.68	4.11	0.59	.67
<i>responsibility</i>	3.59	0.69	.63	3.85	0.44	.76	.79	3.67	0.57	.69
Neuroticism	2.99	0.68	.81	2.41	0.29	.73	.70	2.52	0.40	.72
<i>anxiety</i>	3.47	0.84	.72	2.55	0.60	.86	.70	2.60	0.51	.48
<i>depression</i>	2.73	0.96	.78	2.44	0.39	.65	.83	2.36	0.54	.65
<i>emotional volatility</i>	2.73	0.99	.82	1.97	0.42	.87	.62	2.20	0.56	.68
Affiliation	1.41	0.72	.67	0.97	0.53	.80	.82	1.68	0.70	.78
<i>warmth</i>	4.10	0.60	.81	2.81	0.39	.79	.74	3.94	0.53	.81
<i>coldness</i>	2.69	0.56	.76	1.84	0.42	.85	.57	2.26	0.40	.73
Dominance	0.19	0.87	.79	-0.16	0.87	.93	.93	0.08	0.85	.85
<i>dominance</i>	3.30	0.61	.80	2.76	0.38	.71	.87	3.18	0.48	.78
<i>submissiveness</i>	3.11	0.56	.77	2.92	0.55	.84	.89	3.10	0.54	.84

Coded behavior during the interactions. We measured state behavior expressed during the interaction with ratings from trained coders. Videos of the interaction were edited so that coders could only see one of the participants (although they could hear both). Coders were only allowed to code one participant in each interaction and did so by watching the 20-minute interaction and then rating the behavior expressed by the target during the interaction using a modified BFI-2 and SBI. We used the complete scales and modified the instructions and items to indicate they were a measure of expressed behavior rather than stable personality traits. For the BFI-2, the statement prior to the items, “This is someone who...” was changed to “The person I observed was...during the interaction” and the items were altered to the past tense to reflect this focus on expressed behavior (e.g., “Was outgoing, sociable”, “Was disorganized”, see Supplemental material for complete modified measures).

In addition to modifying the scales, coders were trained to only consider directly observable behavior in their judgments and not to infer how that person was in general. This training consisted of an initial training session followed by 4 weeks of practice coding. Each week coders rated 5 participants (from a pilot study) and met in teams with the coding supervisor to discuss their approach and any items or participants that had inconsistencies or disagreement. These weekly meetings continued throughout the coding process to ensure that coders continued to follow protocol and rate only observed behavior.

We preregistered that each participant would be rated independently by a minimum of three coders. To achieve this, we assigned a team of 13 coders to rate one participant from each of the 161 dyads, collecting 1595 ratings of the 322 participants. We excluded 109 ratings of participants made by one coder who was dismissed from the study for not following protocol, and 47 ratings made by another coder who was unable to reach agreement with other coders.

After exclusions, 1439 ratings from 11 coders (6 female; $M_{age} = 20$, $SD_{age} = 2$; 4 Asian, 6 White; 1 coder did not provide demographic data) were included in the analysis and each participant was rated by three or more coders ($M_{ratings} = 4.49$, $SD_{ratings} = .70$). Coded scale scores were calculated by reverse scoring and averaging the corresponding domain and facet items. An intraclass correlation coefficient for average random raters (ICC2k) was calculated for each scored BFI-2 domain and facet with the psych package (Version 1.8.12; Revelle, 2018) in R (R Core Team, 2016). Inter-rater reliability (see Table 2) was adequate for all domains ($ICC > .69$) and facets ($ICC > .61$). The coded state ratings also showed adequate scale reliability at the domain ($\alpha > .72$) and facet levels ($\alpha > .64$). We employed the SBI in the same three contexts as the BFI-2—trait, state, and perception. We report complete reliability statistics for the measures in each of these contexts in Table 2. In summary, the four SBI subscales showed adequate reliability ($\alpha > .70$) and the two domains, affiliation ($ICC = .82$) and dominance ($ICC = .93$), showed good inter-rater reliability among coders.

Partner perceptions. After the interaction, participants made ratings of their partners using the BFI-2 items and the SBI. Scale scores were calculated by reverse scoring and averaging the corresponding domain and facet items. These ratings had adequate internal consistency for all BFI-2 domains ($\alpha > .71$), facets ($\alpha > .61$), and overall ($M_{\alpha} = .72$, $SD_{\alpha} = .13$). The exceptions were the compassion facet of agreeableness ($\alpha = .36$) and anxiety facet of neuroticism ($\alpha = .48$). The four SBI subscales showed adequate reliability ($\alpha > .72$) as did the two domains, affiliation ($\alpha = .78$) and dominance ($\alpha = .85$).

Analyses

We used the lavaan package (Version 0.6-4; Rosseel, 2012) in the R programming language (R Core Team, 2016) to estimate a dynamic perception model (DPM) for each of the

five Big Five domains, the underlying 15 facets, and the two interpersonal domains. Individual participants were assigned to dyads based only on schedule availability, which we treated as pseudo-random assignment for analysis purposes. Within each dyad, both participants had the same role so we placed equality constraints to make this an indistinguishable dyad model (Olsen & Kenny, 2006). Specifically, the predictor means and variances, the outcome intercepts, the residual variances, and each of the five mirrored paths (*a*, *b*, *c*, *d*, *e*) were constrained to be equal (data and analysis code for the preregistered models can be found at: <https://osf.io/qp86r/>). This enables the model to use all information from both members of the dyad to calculate parameter estimates. In addition, within each model we constrained the covariances of the traits and the residual covariances of both states and perceptions to be zero. The decision to add these constraints was made while we were running simulations for the power analysis; the constraints helped avoid convergence problems. These assumptions were checked as part of the model fitting process.

Results

We begin by presenting model fit statistics to check whether the DPMs were a good fit to the data. Then we present the results for the dynamic perception models (DPMs) for the Big Five domains and 15 facets. The results are organized into sections by the theorized perception and interpersonal processes, each of which corresponds to a path in Figure 1. Within each section, we begin with results for agreeableness and extraversion and their facets, with predictions drawn from interpersonal theory. Next, we report results of for the task-relevant hypotheses about openness as well as its facets. Last in each section we present results for the models of conscientiousness and neuroticism and their facets. Finally, in a separate section after the Big Five domains and facets, we report the results for the dominance and affiliation domains from

interpersonal theory in order to provide a closer replication and extension of Sadler and Woody (2003). To interpret results, we describe standardized path coefficients with an absolute value from 0 to .20 as small, from .20 to .40 as medium, and greater than .40 as large. For consistency, we report p-values for two-tailed tests, even for the directional hypotheses.

Model Fit

Our primary goal was parameter estimation, not model selection or evaluation, but here we report model fit before proceeding to our main analyses. Model fit indices were adjusted for indistinguishable dyads (Olsen & Kenny, 1996) Overall model fit, summarized in Table 3, was acceptable for most models. Openness had a high RMSEA of .116, so we examined the modification indices to see if we could identify the source of the misfit. Adding direct paths from trait to others' perception of that trait improved model fit for openness, ($\Delta\chi^2 = 11.17, p < .001$, CFI = 1.00, RMSEA = .000, $p_{\text{close}} = .803$). The addition of these two paths (with equality constraints for exchangeable dyads) accounted for additional variance in perceptions of openness but did not change the direction or substantially alter the magnitude of the paths of interests. Therefore, for parsimony and consistency with our preregistration, we report results from the original model.

Table 3

Model Fit Statistics (adjusted for indistinguishable dyads), Dynamic Perception Models for Big Five Domains and Facets.

Domain <i>facet</i>	χ^2	df	<i>p</i>	CFI	RMSEA	RMSEA CI	<i>p_{close}</i>
Agreeableness	7.41	4	.116	.950	.073	[.000, .154]	.259
<i>compassion</i>	2.19	4	.701	1.000	.000	[.000, .090]	.826
<i>trust</i>	7.31	4	.120	.919	.072	[.000, .153]	.266
<i>respect</i>	3.66	4	.453	1.000	.000	[.000, .115]	.637
Extraversion	6.81	4	.146	.980	.066	[.000, .149]	.304
<i>sociability</i>	2.40	4	.662	1.000	.000	[.000, .094]	.800
<i>assertiveness</i>	8.26	4	.082	.970	.082	[.000, .161]	.205
<i>energy level</i>	10.81	4	.029	.935	.103	[.030, .180]	.097
Openness	12.62	4	.013	.924	.116	[.048, .191]	.055
<i>intellectual curiosity</i>	15.79	4	.003	.845	.136	[.070, .209]	.019
<i>aesthetic sensitivity</i>	22.86	4	<.001	.876	.172	[.108, .243]	.002
<i>creative imagination</i>	4.25	4	.374	.995	.020	[.000, .122]	.564
Conscientiousness	1.10	4	.894	1.000	.000	[.000, .053]	.946
<i>organization</i>	2.40	4	.662	1.000	.000	[.000, .094]	.800
<i>productivity</i>	4.08	4	.396	.994	.011	[.000, .120]	.585
<i>responsibility</i>	5.30	4	.257	.913	.045	[.000, .134]	.444
Neuroticism	5.32	4	.256	.934	.045	[.000, .135]	.442
<i>anxiety</i>	8.00	4	.092	.855	.079	[.000, .159]	.221
<i>depression</i>	9.16	4	.057	.892	.090	[.000, .168]	.159
<i>emotional volatility</i>	2.01	4	.734	1.000	.000	[.000, .085]	.848

Expression, Elicitation, and Perception (see Table 4)

Trait expression. The first results we report were for the hypothesis that Big Five personality traits and their underlying facets represent stable individual differences that were expressed in behavior. This hypothesis is represented in the DPM in Figure 1 by path a , the direct path from an individual's self-reported trait to the coded behavior expressed during the interaction. Estimates from the fitted models are reported in Table 4. To aid interpretation of the results, all observed variables were transformed to percent of maximum possible (POMP; Cohen et al., 1999) scores prior to model estimation. POMP scores are a linear transformation of the raw scores that rescale the theoretical range from 0 to 100.

The estimated DPM supported the hypothesis that trait agreeableness, measured before the interaction, predicts state agreeableness during the interaction. The unstandardized path coefficient, $a = 0.125$, indicates that for every scale point of trait Agreeableness on the 0-100 POMP scale, there was a 0.125 POMP unit increase in expressed Agreeableness. The 95% confidence interval for the unstandardized effect showed that the data are consistent with a population effect from 0.052 to 0.208, and the width of the interval suggests that the estimate was reasonably precise. The standardized effect was $\beta_a = .16$, indicating a small estimated effect of trait Agreeableness on behavior. The two-tailed p -value of .002 would support a decision to reject the null hypothesis.

We also estimated models for the three facets of Agreeableness, though we did not preregister separate directional predictions for them. The results supported the conclusion that compassion and respect were both expressed in behavior, but for trust the data did not rule out a null effect.

For clarity of presentation of the remaining results, in the text we only report the standardized effect size; all other statistics are reported in tables. The results for extraversion showed a medium effect, $\beta_a = .24$. We preregistered directional predictions at the facet level for sociability, assertiveness, and energy-level. Sociability showed a medium effect, $\beta_a = .28$, assertiveness showed a small effect, $\beta_a = .16$, and energy level, also had a small effect, $\beta_a = .14$.

Trait expression was also supported for openness, $\beta_a = .29$. This was the relatively largest effect of trait on behavior that we observed, and it suggests that the art gallery task elicited expression of this relevant trait. Effects of similar magnitude were observed for the facets of intellectual curiosity and aesthetic sensitivity, with a slightly smaller effect for creative imagination.

Conscientiousness showed a small effect, $\beta_a = .10$, but neuroticism, $\beta_a = .08$, was not significantly expressed during the art gallery interaction task. Among the facets of these traits, we only found evidence of trait expression for the organization facet of conscientiousness, $\beta_a = .28$. We speculate that similar to the expression of openness, the expression of organization was facilitated by the task itself, which required sorting and selecting 3 of 20 pieces of paper, providing an opportunity for overt expression of organization more so than the other facets.

Behavior elicitation. The second hypothesis was that behavioral expression of certain traits and facets would elicit complementary (similar or dissimilar) behavior from an interaction partner. This hypothesis is represented in the DPM in Figure 1 by the two reciprocal paths, labeled b , between the behavior of one interaction partner and the behavior of the other.

The DPM for agreeableness did not support the behavior elicitation hypothesis at the domain level, $\beta_b = .04$, n.s.; so, the amount of Agreeableness expressed in behavior by one interactant did not influence the amount of Agreeableness expressed in the behavior of the other

interactant. There was some evidence of a small behavior elicitation effect for the compassion facet of Agreeableness, $\beta_b = .13$, but not in its other facets, respect and trust.

Our preregistered predictions for extraversion were that two facets, sociability and energy-level, would elicit similar behavior and one facet, assertiveness would elicit dissimilar behavior. We therefore did not expect to find behavior elicitation at the broad domain level for extraversion where these effects might cancel out, and indeed the results showed no significant effect in either direction, $\beta_b = -.06$. At the facet level, our preregistered hypotheses were supported for sociability and assertiveness but not for energy-level. Sociability elicited *similar* behavior, $\beta_b = .10$. Assertiveness elicited *dissimilar* behavior, $\beta_b = -.32$. These findings are consistent with interpersonal theory, and the differentiated effects of two facets of the same trait indicate that facets may be the appropriate level of granularity to examine the phenomena of perceived similarity.

The estimated DPM for openness showed a behavior elicitation effect at the domain level, $\beta_b = .16$, consistent with the preregistered directional hypothesis. Further, we found similar evidence of behavior elicitation for all three facets. These results provide strong support for behavior elicitation across the openness trait domain and show that in a task that requires the expression of openness, an increase in trait-relevant behavior expressed by one interactant is associated with an increase in openness-relevant behavior expressed by their interaction partner.

Behavior elicitation was not supported for conscientiousness. However, the facet models showed a small behavior elicitation effect for the conscientiousness facet of organization, $\beta_b = .10$. Much like the findings for openness, behavior elicitation in organization suggests that the opportunity to overtly express a trait in a relevant task results in high levels of expression and subsequent behavior elicitation. There was also evidence of behavior elicitation in neuroticism,

$\beta_b = -.08$, and differentiated effects in its three facets. Depression elicited similar behavior, $\beta_b = .12$, and unexpectedly, both anxiety, $\beta_b = -.18$ and emotional volatility, $\beta_b = -.09$, elicited dissimilar behavior. The latter results suggest that the more anxiety or emotional volatility expressed by one interactant, the less of the same behavior was expressed by their interaction partner.

Circumscribed accuracy. The third hypothesis was that participants' behavior during the interaction would give rise to realistic impressions formed by their partners. This hypothesis is represented in the DPM in Figure 1 by the direct path c between the expressed behavior of one interaction partner and the partner's perception of them.

The results, presented in Table 4, are relatively easy to summarize: we found support for circumscribed accuracy for all five domains, and at the facet level for all facets except emotional volatility. Indeed, the largest effects in our models were for circumscribed accuracy. We found a medium circumscribed accuracy effect for agreeableness, $\beta_c = .29$, and similar effects for its three facets. The circumscribed accuracy effects were even larger for extraversion and its facets. For our preregistered predictions we found a medium effect for assertiveness, $\beta_c = .38$, and a large effect for sociability, $\beta_c = .58$. We also observed a large effect for the broad Extraversion domain, $\beta_c = .56$, and for the energy level facet, $\beta_c = .47$. There was support for a medium circumscribed accuracy effect for the openness domain, $\beta_c = .39$, supporting our preregistered hypotheses, and we observed medium to large effects for its three facets.

In the additional analyses there was evidence of circumscribed accuracy for conscientiousness and its three facets, with the organization facet again standing out with a large effect size, $\beta_c = .58$. There was a small circumscribed accuracy effect for the neuroticism

domain, $\beta_c = .14$, and its facets of anxiety, $\beta_c = .13$, and depression, $\beta_c = .25$, but not for emotional volatility.

Table 4

Dynamic Perception Model Estimates for Trait Expression, Behavior Elicitation, and Circumscribed Accuracy for Big Five Domains and Facets

Domain facet	Trait Expression (path <i>a</i>)			Behavior Elicitation (path <i>b</i>)			Circumscribed Accuracy (path <i>c</i>)		
	<i>a</i> [95% CI]	β	<i>p</i>	<i>b</i> [95% CI]	β	<i>p</i>	<i>c</i> [95% CI]	β	<i>p</i>
Agreeableness	0.125 [0.052, 0.208]	.16	.002	0.038 [-0.048, 0.124]	.04	.390	0.298 [0.193, 0.409]	.29	<.001
<i>compassion</i>	0.085 [0.015, 0.164]	.12	.022	0.125 [0.031, 0.218]	.13	.010	0.225 [0.111, 0.339]	.21	<.001
<i>trust</i>	0.047 [-0.011, 0.113]	.09	.131	0.025 [-0.045, 0.088]	.03	.462	0.305 [0.160, 0.461]	.23	<.001
<i>respect</i>	0.138 [0.058, 0.222]	.17	.001	-0.070 [-0.159, 0.011]	-.07	.106	0.265 [0.164, 0.374]	.27	<.001
Extraversion	0.226 [0.128, 0.318]	.24	<.001	-0.058 [-0.123, 0.011]	-.06	.099	0.593 [0.499, 0.682]	.56	<.001
<i>sociability</i>	0.232 [0.153, 0.307]	.28	<.001	0.098 [0.029, 0.169]	.10	.007	0.659 [0.557, 0.761]	.58	<.001
<i>assertiveness</i>	0.118 [0.046, 0.193]	.16	.001	-0.316 [-0.378, -0.259]	-.32	<.001	0.450 [0.304, 0.599]	.38	<.001
<i>energy level</i>	0.123 [0.027, 0.213]	.14	.007	0.029 [-0.038, 0.098]	.03	.401	0.494 [0.399, 0.598]	.47	<.001
Openness	0.238 [0.141, 0.328]	.29	<.001	0.157 [0.090, 0.223]	.16	<.001	0.464 [0.342, .0585]	.39	<.001
<i>intellectual curiosity</i>	0.208 [0.119, 0.292]	.27	<.001	0.164 [0.090, 0.233]	.16	<.001	0.331 [0.197, 0.463]	.27	<.001
<i>aesthetic sensitivity</i>	0.194 [0.123, 0.258]	.31	<.001	0.140 [0.069, 0.208]	.14	<.001	0.577 [0.433, 0.723]	.40	<.001
<i>creative imagination</i>	0.116 [0.042, 0.199]	.17	.003	0.120 [0.044, 0.196]	.12	.002	0.420 [0.287, 0.558]	.34	<.001
Conscientiousness	0.045 [0.009, 0.086]	.10	.018	-0.005 [-0.089, 0.072]	-.01	.905	0.282 [0.086, 0.472]	.17	.004
<i>organization</i>	0.232 [0.153, 0.307]	.28	<.001	0.098 [0.029, 0.169]	.10	.007	0.659 [0.557, 0.761]	.58	<.001
<i>productivity</i>	0.022 [-0.014, 0.061]	.05	.253	-0.052 [-0.133, 0.025]	-.05	.198	0.270 [0.082, 0.459]	.15	.005
<i>responsibility</i>	0.041 [-0.021, 0.103]	.06	.188	-0.008 [-0.098, 0.085]	-.01	.867	0.204 [0.040, 0.360]	.16	.012
Neuroticism	0.035 [-0.012, 0.084]	.08	.138	-0.080 [-0.163, -0.008]	-.08	.044	0.184 [0.037, 0.342]	.14	.015
<i>anxiety</i>	0.005 [-0.065, 0.075]	.01	.882	-0.18 [-0.250, -0.108]	-.18	<.001	0.113 [0.010, 0.209]	.13	.023
<i>depression</i>	0.039 [-0.001, 0.083]	.10	.059	0.119 [0.035, 0.200]	.12	.005	0.353 [0.252, 0.495]	.25	<.001
<i>emotional volatility</i>	0.044 [-0.002, 0.097]	.11	.075	-0.094 [-0.170, -0.033]	-.09	.007	0.103 [-0.047, 0.265]	.08	.188

Note: Estimates in bold indicate corresponding p-values < .05

Perceived Similarity (see Table 5)

Trait assumed similarity. The fourth hypothesis was that people's perceptions of others are biased by how they generally perceive themselves. This hypothesis is represented in the DPM by the direct path from self-reported traits to perception of the interaction partner (path *d*). Substantial values for this path would provide support for the traditional approach to assumed similarity which posits that people see others as similar to themselves, even after accounting for the partner's observed behavior in the interaction.

Consistent with prior work (Kenny, 1994; Srivastava et al., 2010), we found evidence of trait assumed similarity in all of the Big Five domains (see Table 5). The models also showed assumed similarity in 9 of 15 facets. In previous work, the largest assumed similarity effects at the domain level have been for agreeableness, and that pattern was repeated here: the trait assumed similarity effect for agreeableness, $\beta_d = .25$, was the largest one we observed. Estimates for trait assumed similarity were similar among the other four domains, ranging from $\beta_d = .16$ for neuroticism to $\beta_d = .10$ for extraversion.

State assumed similarity. We had no strong prior theory to guide hypotheses about state assumed similarity, but we included this path in the DPM after identifying expressed behavior as a conceivable influence on perceptions of others. State assumed similarity is represented in the DPM in Figure 1 by the direct path from behavior to perception of partner, path *e*. Substantial values for this path would indicate that an individual's behavior during an interaction affected their perception of others, even after accounting for the individual's own traits and their partner's behavior.

We found evidence of a small state assumed similarity effect for agreeableness, $\beta_e = .11$, and its facet of trust. This suggests that the more agreeableness expressed by an individual during

an interaction, the higher they rate the agreeableness of their interaction partner. We also found support for state assumed similarity in energy level, $\beta_e = .10$, and neuroticism, $\beta_e = .17$. These results suggest an additional, situational source of possible bias in perceptions of others. Because all of these effects were small, we interpret these as suggestive results deserving further follow-up, rather than a basis for strong conclusions at this point.

Perceiver-elicited (dis)similarity. The hypothesis about perceiver-elicited similarity was tested with a compound, double-mediation path. We posited that a person's personality influences their perception of others through the expression of traits, elicitation of similar or dissimilar behavior, and subsequent accurate perception of that behavior. This hypothesis is represented in the DPM by an indirect path from trait to behavior (trait expression, path *a*), to behavior (behavior elicitation, path *b*), and to perception (circumscribed accuracy, path *c*). We tested this compound hypothesis using bootstrapping to estimate the confidence intervals of the double-mediated path *abc*.

Perceiver-elicited similarity was not supported for agreeableness, $abc = 0.001$, 95% CI = [-0.002, 0.005], or any of its facets, which is partially a function of the lack of behavior elicitation in these domains and facets. Our differentiated hypotheses about the sociability and assertiveness facets of Extraversion were supported. The facet-level DPMs supported perceiver-elicited similarity in sociability, $\beta_{abc} = .02$, and perceiver-elicited dissimilarity in assertiveness, $\beta_{abc} = -.02$. This shows that people high in sociability perceived others to be higher in sociability than they actually are because they expressed their own trait related behavior, elicited similar behavior, and then accurately perceived the elicited behavior. For assertiveness, the opposite was true. People saw others as dissimilar to the self because assertive behavior elicited the opposite, or unassertive, behavior.

Further, the DPM supported the hypothesis of perceiver-elicited similarity in openness, $\beta_{abc} = .02$, as well as in all three of its facets. Examination of the DPMs for other facets revealed perceiver-elicited similarity in the organization facet of conscientiousness, $\beta_{abc} = .02$.

Interestingly, there was support for perceiver-elicited similarity in all of the task relevant dimensions. This suggests that task relevance, or more generally context, may play an important role for behavior elicitation and perceiver-elicited similarity.

All of the estimated *abc* effects were small. This is not unusual for double-mediated effects, but it is worthy of further consideration. We return to the issue of how to interpret these small effects in the discussion.

Table 5

Dynamic Perception Model Estimates for Trait Assumed Similarity, State Assumed Similarity, and Perceiver-elicited Similarity for Big Five Domains and Facets

Domain facet	Trait Assumed Similarity (path <i>d</i>)			State Assumed Similarity (path <i>e</i>)			Perceiver-elicited Similarity (path <i>a*b*c</i>)		
	<i>d</i> [95% CI]	β	<i>p</i>	<i>e</i> [95% CI]	β	<i>p</i>	<i>abc</i> [95% CI]	β	<i>p</i>
Agreeableness	0.197 [0.116, 0.285]	.25	< .001	0.114 [0.012, 0.223]	.11	.030	0.001 [-0.002, 0.005]	.00	.427
<i>compassion</i>	0.156 [0.076, 0.242]	.21	< .001	0.030 [-0.065, 0.144]	.03	.565	0.002 [0.000, 0.006]	.00	.120
<i>trust</i>	0.134 [0.055, 0.215]	.19	.001	0.189 [0.041, 0.323]	.14	.009	0.000 [-0.001, 0.002]	.00	.587
<i>respect</i>	0.082 [-0.001, 0.179]	.10	.074	0.108 [0.003, 0.230]	.11	.057	-0.003 [-0.008, 0.000]	-.00	.219
Extraversion	0.103 [0.017, 0.199]	.10	.025	0.005 [-0.092, 0.108]	.00	.928	-0.008 [-0.019, 0.002]	-.01	.132
<i>sociability</i>	0.126 [0.039, 0.217]	.13	.006	-0.064 [-0.174, 0.045]	-.06	.256	0.015 [0.004, 0.030]	.02	.026
<i>assertiveness</i>	0.001 [-0.092, 0.096]	.00	.991	-0.095 [-0.237, 0.056]	-.08	.197	-0.019 [-0.035, -0.007]	-.02	.010
<i>energy level</i>	0.132 [0.051, 0.220]	.14	.002	0.100 [0.006, 0.197]	.10	.036	0.002 [-0.002, 0.008]	.00	.493
Openness	0.130 [0.007, 0.261]	.13	.038	0.027 [-0.114, 0.179]	.02	.713	0.018 [0.007, 0.032]	.02	.005
<i>intellectual curiosity</i>	0.044 [-0.066, 0.162]	.06	.446	0.028 [-0.115, 0.181]	.02	.710	0.012 [0.004, 0.021]	.01	.012
<i>aesthetic sensitivity</i>	0.211 [0.095, 0.323]	.23	< .001	0.026 [-0.132, 0.188]	.02	.752	0.016 [0.006, 0.028]	.02	.005
<i>creative imagination</i>	0.062 [-0.036, 0.160]	.07	.200	-0.015 [-0.157, 0.124]	-.01	.838	0.006 [0.001, 0.014]	.01	.067
Conscientiousness	0.101 [0.018, 0.186]	.13	.021	0.158 [-0.012, 0.336]	.10	.077	0.000 [-0.001, 0.001]	.00	.922
<i>organization</i>	0.126 [0.039, 0.217]	.13	.006	-0.064 [-0.174, 0.045]	-.06	.256	0.015 [0.004, 0.030]	.02	.026
<i>productivity</i>	0.103 [0.024, 0.184]	.13	.015	0.143 [-0.086, 0.361]	.08	.205	0.000 [-0.001, 0.000]	.00	.496
<i>responsibility</i>	0.121 [0.025, 0.221]	.15	.015	0.085 [-0.059, 0.228]	.07	.231	0.000 [-0.001, 0.001]	.00	.915
Neuroticism	0.090 [0.027, 0.155]	.16	.006	0.166 [0.037, 0.299]	.01	.013	-0.001 [-0.002, 0.000]	-.00	.330
<i>anxiety</i>	0.060 [-0.002, 0.119]	.10	.048	0.037 [-0.070, 0.140]	.04	.486	0.000 [-0.002, 0.001]	.00	.904
<i>depression</i>	0.083 [0.019, 0.148]	.15	.009	0.122 [-0.020, 0.272]	.09	.093	0.002 [0.000, 0.004]	.00	.148
<i>emotional volatility</i>	0.052 [-0.008, 0.118]	.09	.107	0.058 [-0.099, 0.222]	.04	.488	0.000 [-0.002, 0.000]	-.01	.391

Note: Estimates in bold indicate corresponding p-values < .05

Replication and Extension of Sadler and Woody (2003)

In addition to our primary hypotheses about the Big Five traits and facets, we collected the same measure of social behavior, the SBI, as Sadler and Woody (2003) in order to replicate and extend their findings. An observed variable mutual influence model with equivalent paths to the latent variable model used by Sadler and Woody would be nested within the DPM and represented by paths a and b .⁵ We estimated two DPMs, one each for the dominance and affiliation domains of the interpersonal circumplex. Fit statistics are reported in Table 6 and were all acceptable.

Table 6

Model Fit Statistics, Dynamic Perception Models for Social Behavior Domains

Domain	χ^2	df	p	CFI	RMSEA	RMSEA CI	p_{close}
Affiliation	22.62	16	.124	.930	.051	[.000, .095]	.448
Dominance	21.22	16	.170	.943	.045	[.000, .091]	.522

The model for affiliation showed a medium trait expression effect, $\beta_a = .28$. The effect of behavior elicitation, however, was negligible, $\beta_b = .07$, and nonsignificant. The model for dominance showed a medium effect of trait expression, $\beta_a = .23$. It also showed the predicted negative behavior elicitation effect, $\beta_b = -.17$. Altogether, 3 of the 4 effects could be considered successful replications of Sadler and Woody's original results (see Table 7).

⁵ We also estimated just the mutual influence model without the additional elements of the DPM, and we confirmed that the estimates were the same.

Table 7

Dynamic Perception Model Estimates for Trait Expression, Behavior Elicitation, and Circumscribed Accuracy for the Social Behavior Domains of the Interpersonal Circumplex

Interpersonal Circumplex Domain	Trait Expression (path <i>a</i>)			Behavior Elicitation (path <i>b</i>)			Circumscribed Accuracy (path <i>c</i>)		
	<i>a</i> [95% CI]	β	<i>p</i>	<i>b</i> [95% CI]	β	<i>p</i>	<i>c</i> [95% CI]	β	<i>p</i>
Affiliation	0.204 [0.122, 0.296]	.28	< .001	0.067 [-0.005, 0.147]	.07	.078	0.325 [0.167, 0.461]	.25	<.001
Dominance	0.229 [0.130, 0.335]	.23	< .001	-0.173 [-0.246, -0.104]	-.17	< .001	0.374 [0.264, 0.476]	.38	<.001

The DPM also includes several extensions on Sadler and Woody's original results. The full DPM showed circumscribed accuracy in both affiliation, $\beta_c = .25$, and dominance, $\beta_c = .38$, indicating that expressed behavior along these dimensions was accurately perceived by interaction partners (Table 7).

We found support for trait assumed similarity for affiliation, $\beta_d = .33$; but not for dominance, $\beta_d = .06$. There was no evidence of state assumed similarity for either dimension (see Table 8).

For the perceiver-elicited similarity hypothesis, represented by the double-mediated *abc* path, the results did not show a meaningful effect for affiliation, $\beta_{abc} = .00$. However, the bootstrapped indirect path estimates indicated support for perceiver-elicited dissimilarity in dominance, $\beta_{abc} = -.02$. Similar to our finding in assertiveness, these results suggest that characteristically dominant people behave in ways that elicit low dominance from their partners, which they then accurately perceive.

Table 8

Dynamic Perception Model Estimates of Trait Assumed Similarity, State Assumed Similarity, and Perceiver-elicited Similarity for the Social Behavior Domains of the Interpersonal Circumplex

Interpersonal Circumplex Domain	Trait Assumed Similarity (path <i>d</i>)			State Assumed Similarity (path <i>e</i>)			Perceiver-elicited Similarity (path <i>a*b*c</i>)		
	<i>d</i> [95% CI]	β	<i>p</i>	<i>e</i> [95% CI]	β	<i>p</i>	<i>abc</i> [95% CI]	β	<i>p</i>
Affiliation	0.321 [0.211, 0.434]	.33	< .001	0.029 [-0.121, 0.177]	.02	.702	0.004 [0.000, 0.011]	.00	.123
Dominance	0.057 [-0.681, 0.191]	.06	.375	-0.047 [-0.145, 0.046]	-.05	.334	-.015 [-0.027, -0.006]	-.02	.007

Discussion

These results provide evidence that that perceived similarity is a dynamic, multicomponent phenomenon. It includes two intrapsychic components: trait assumed similarity most closely corresponds to the idea of a stable sense of self influencing or biasing perceptions, whereas state assumed similarity corresponds to an influence of a perceiver's current behavioral state. In addition, for some traits we found evidence for an interpersonal path to perceived similarity. During an interaction, people behave in ways that are consistent with their stable personalities, they influence and are influenced by one another, and they form accurate perceptions of each other based on what they observe in the interaction. Putting these three processes together shows that part of what people perceive in one another is based on behavior that they have elicited. Most of the time this takes the form of perceiver-elicited similarity, where people see others as similar to themselves because they have elicited similar behavior. But for specific exceptions anticipated by interpersonal theory, people can elicit opposite behavior,

which results in perceiver-elicited dissimilarity. In this discussion, we discuss the implications of these findings further.

Perceived Similarity Reflects More Than One Process

What processes lead to greater or lesser similarity between self-perceptions and perceptions of others? The present results do not suggest that the explanation of a cognitive heuristic or bias is incorrect, but they do suggest it is incomplete.

Trait assumed similarity. Trait assumed similarity reflects an intrapsychic component of perceived similarity. By assessing behavior during the interaction, we were able to estimate the proportion of an impression that is associated with the perceiver's own personality but is not accounted for by the expressed behavior of either person in the interaction. After decomposing perceived similarity into different components, trait assumed similarity remained a consistently substantial effect. Considering the ample evidence for assumed similarity in the literature (e.g., Human & Biesanz, 2011, 2012; Kenny, 1994; Lee et al., 2009; Ready et al., 2000; Srivastava et al., 2010), it was not surprising to find support for trait assumed similarity across all five Big Five domains and most of the facets.

State assumed similarity. The exploratory hypotheses about the existence of state assumed similarity were supported for domain-level agreeableness and its facet of trust, and for domain-level neuroticism. Further work is necessary to determine if this is a replicable effect, but it suggests an interesting avenue to expand research on assumed similarity. For example, Ready et al. (2000) proposed that when people do not have good information about another person, they use their own personalities to fill in the missing information. This finding suggests that in addition to drawing on their stable selves, people may also draw on their current personality state (as defined by Fleeson, 2001) when forming an impression of another person.

Perceiver-elicited (dis)similarity. The central aim of this work was to examine if Big Five traits expressed in behavior systematically elicited behavior from others that is then incorporated into a realistic perception process. Within the DPM, the perceiver-elicited similarity hypothesis was represented by the product of three paths: trait expression (path *a*), behavior elicitation (path *b*), and circumscribed accuracy (path *c*). Preregistered tests of this compound hypothesis were supported in 3 out of five domains and facets. For sociability and openness, this interpersonal process increased perceived similarity. For assertiveness, as predicted the effect was in the opposite direction of perceived dissimilarity. We did not observe the hypothesized effect in a preregistered analysis of agreeableness, nor for the energy level facet of extraversion.

These results suggest that, at the very least for extraversion, it is important to study interpersonal processes at the more granular level of facets rather than in broad domains. We hypothesized and found support for opposite findings for different facets – similarity for one, dissimilarity for another – as anticipated by predictions about the behavior elicitation processes derived from interpersonal theory (Hopwood et al., 2019). When people are sociable, they elicit similarly sociable behavior from others; but when they are assertive, they elicit less assertive behavior. These opposite behavior elicitation effects propagated into opposite implications for the compound perceiver-elicited similarity effect. This reversal in sign also suggests that the present results cannot be reduced to a common factor such as global positive evaluation (see also Srivastava et al., 2010, for descriptive evidence of trait-specific assumed similarity).

Whereas interpersonal theory leads to predictions across a wide range of contexts, the results for perceiver-elicited similarity for openness also suggest that effects for other traits may depend on relevance to a specific interpersonal task or context. The participants in this study were assigned to discuss and make judgments about artwork. This was a situation in which

individual differences in openness were likely to be expressed in salient behavior, which can both influence a partner and provide relevant cues for perceivers. Similarly, although it was not preregistered and thus should be viewed with more caution, the result for the organization facet is also consistent with the nature of the task, which required participants to sort and work through a large number of materials. If task-relevance explains these results, then it is possible that in different tasks, effects could be observable for different traits. For example, in a task that provokes stress or anxiety, individual differences in neuroticism might be more strongly expressed in behavior and have analogous effects.

Why was no perceiver-elicited similarity effect detected for agreeableness? Looking at the results, it appears that the trait expression and circumscribed accuracy paths were both relatively weaker than for other domains, and behavior elicitation was virtually nonexistent. One possibility is that the general hypothesis is simply wrong. We believe it is important to consider that possibility, though to accept it would require reconciling the present results with previous studies finding support for expression (Funder & Colvin, 1991; Funder et al., 2000; Furr and Funder, 2004; Furr & Funder, 2007; Furr et al., 2010), elicitation (Carson, 1969; Kiesler, 1983; Sadler et al., 2009; Sadler & Woody, 2003), and circumscribed accuracy in perceptions of agreeableness and the related interpersonal domain of affiliation (Connolly & Ones, 2010; Connolly et al., 2007; Kenny, 1994; Kenny & Albright, 1987; Kenny & West, 2010). A second possibility is that the hypothesis is correct but we did not detect the effect in this study due to random sampling error. A third, intermediate possibility is that the population effect is smaller than we planned for in the power analysis and could not be easily detected with this sample size. One reason the effect could be muted in this experimental situation would be if the participants – who were meeting a fellow student at the same university for the first time – followed a social

norm to act moderately agreeable with one another no matter what, rather than responding dynamically to each other's behavioral cues. We told participants they could receive money for choosing the "best" art in order to create a situational pull to express disagreements, but it is possible this was not enough to motivate expression of (dis)agreeableness. In future research, it would be important to consider whether the population and setting make it plausible that variability in agreeableness-related behavior would be expressed and reciprocated.

The perceiver-elicited similarity effects that we detected in this study were quite small in magnitude; what should we make of the effect sizes? In the DPM, perceiver-elicited similarity is represented as a chain of several effects, and other sources of variance (represented as error terms) are introduced at each juncture. To some extent, this may reflect imperfect measurement that could attenuate the observed effects. But notwithstanding that possibility, we think it is reasonable to take seriously that the theorized process, reflecting the distal effect of personality propagating through a system of complex and multiply determined variables, is small in magnitude. Does that mean it is negligible? Or could such a small effect still be theoretically interesting? We consider that question in the next section.

Perceiver-elicited Similarity and Development of Trait Assumed Similarity

One reason why a small effect from an experiment can represent an important phenomenon is if the effect is a single instance of something that repeats and accumulates in the world outside the laboratory (Funder & Ozer, 2019). Although we did not test it in this study, speculation about such a cumulative process is part of what originally motivated this research.

Previous research on interpersonal perception has shown that perceiver effects – a tendency to see an average other as high or low on some trait – are not only correlated with self-perceptions, reflecting an assumed similarity effect, but also consistent over time, suggesting that

they reflect a stable mental representation of others (Srivastava et al., 2010; Wood et al., 2010). Where could that come from? We think it is possible that trait assumed similarity is the cumulative product of many instances of interpersonally elicited and perceived similarity. For example, each time a highly sociable person interacts with other people, those others are a little bit more sociable than they would be otherwise, and the sociable person forms an impression of others based on their behavior. Over a lifetime of interactions, the sociable person's lived experience is of a world where people are especially sociable, and that contributes to a mental representation of an average other person that is grounded in those repeated experiences. This proposition is supported by a longitudinal data showing that assumed similarity can increase with additional contact (Markey & Kurtz, 2006; Srivastava et al., 2010).

This account would lead to an expanded interpretation of the trait assumed similarity effect observed in this study and previous ones. At the individual level, assumed similarity can be characterized as a realistic expectation based on prior experience. It reflects accuracy in Swann's (1984) sense of circumscribed accuracy, but globally it can be considered a bias. However, the bias comes from the individual's history of social interactions, rather than being an intrinsic property of a cognitive process. This explanation can be contrasted with the account of assumed similarity as a person-perception heuristic invoked in the moment (e.g., Ready et al., 2000), though the explanations are not mutually exclusive. This developmental theory is speculative and will require longitudinal evidence to be confirmed. But the present work demonstrates a central piece of the theory by showing that in a single encounter people do influence the behavior of others and accurately perceive reciprocation of their own personality by their interaction partners.

It is also possible that interpersonally elicited and perceived similarity varies in magnitude; the small effect observed in this study may be an average that masks larger effects among some people and no effect among others. This would be supported by converging research from clinical psychology, showing an association between interpersonal complementarity and mental health (Dawood et al., 2018; Hopwood et al., 2013 Pincus, 2005), and social psychology showing an association between psychological adjustment and assumed similarity (Human & Biesanz, 2011). Dysregulation of the interpersonal process of complementarity is an important indicator of personality psychopathology (Benjamin, 1993; Pincus et al., 2010; Pincus & Hopwood, 2012), which may explain why well-adjusted individuals perceive higher levels of assumed similarity with others.

Limitations and Alternative Interpretations of the Model

The DPM is an analytic model of effects that occur during and after a social interaction. A strong causal interpretation rests on a number of assumptions. We designed this study to make at least some of these assumptions plausible. For example, in the DPM, the trait measures are not affected by the behavioral states expressed in the interaction or by perceptions formed after it. Because we measured personality traits a day prior to the experimental session, this is probably a safe assumption. The model also specifies paths from behaviors to perceptions but not from perceptions to behaviors. This reflects the temporal ordering of measurements in the study: behaviors were measured during the interaction, and “perceptions” in the model were final impressions after all behavior had been observed. However, it is likely that participants began to form impressions during the interaction, and we cannot rule out that those impressions affected behavior. We did not measure interim perceptions during the interaction, and including a path from final perceptions to behaviors would have been questionable from a temporal perspective

and made the model underidentified, so we fixed it to zero as an identifying constraint, but that is a limitation of the model. One alternative strategy that could be pursued in future research would be to test each path in the causal chain in a separate experiment. Such an approach has its own limits (Bullock et al., 2010), but converging evidence between the two approaches would provide stronger evidence of mediation. Another strategy would be to collect repeated measures of perceptions and behavior during the interaction, such as with a rating dial, and model the measurements as a time series. It would also be possible to include other constructs in the model, such as participants' expectations about their partners' behavior, to see if they mediate or independently affect behavior and post-interaction perceptions.

The DPM also constrained the covariances between partners to be zero (e.g., between the two partners' trait measures, the error variances of their behavior measures, and the error variances of their perception measures). The decision to include these constraints was preregistered, mainly due to concerns about model convergence that arose during the simulations we ran for sample-size planning. In followup analyses, the model was robust to removing these constraints for the trait measures and the perception error terms, and doing so does not meaningfully change any of the estimated effects nor does it change the conclusions. However, the model required constraining the covariance between the behavior measures' residuals to be zero in order to provide stable estimates of the b paths.

Notably, the DPM is missing a path from person A's trait to person B's impression of person A (and its matching path from B's trait to A's impressions of B). These paths would represent accuracy in impressions that cannot be attributed to the expressed behavior observed by the coders, for example if some behaviors are not captured by the video cameras. By not including these paths, we are essentially constraining them to zero and assuming that any global

accuracy in perceptions could be entirely accounted for by what the coders saw in the behavior. During evaluation of model fit for the preregistered analyses, modification indices suggested the addition of this path to one model (for openness), as reported earlier. In post hoc analyses, we added these paths to the models for all 20 Big Five domains and facets to further test this assumption. We found a significant effect in 4 models: extraversion, responsibility (a facet of conscientiousness), openness, and its aesthetic sensitivity facet. For the latter two, we can suggest a post hoc explanation. During the interaction participants were looking at paintings while discussing them, but during coding the cameras were at an angle that did not allow the coder to see the paintings. It is possible that the participants had additional, useful information about openness by being able to compare their partners' opinions about the art to the actual artwork. Adding these paths did not change the other effects in the model, but it did expand our appreciation for the complexity of the interpersonal perception processes we were studying in the experiment.

Finally, specifying the DPM with latent instead of observed variables would have provided correction for measurement error, which may have increased some of the effect estimates. The use of observed variables in the DPM provides one explanation for the attenuation in effects sizes between Sadler and Woody (2003) and the present study. Future work using the DPM may consider using latent variables.

Conclusion

In previous work, perceived similarity has primarily been interpreted as assumed similarity that draws on stable, background beliefs about the self. However, impressions are often formed dynamically in interpersonal interactions. The present results provide evidence that through dynamic interpersonal processes, people can elicit similar or complementary behavior

from others which forms a basis for realistic perceptions of others. The present work does not contradict previous explanations of assumed similarity, but it suggests that they are incomplete, and it situates both prior beliefs and interpersonal processes within a larger and more complex theoretical picture of how people come to see others as similar to themselves.

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