How People's Positive Versus Negative Attributes Shape Impression Formation and Person Perception – A Cognitive-Ecological Perspective

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Abstract

Forming impressions of others is a central part of social life. These impressions already occur when minimal information about another person is available. Impressions of new acquaintances are influenced by their traits and attitudes, which can vary in valence. People can have positive and negative traits and express what they like (i.e., positive attitudes) and what they dislike (i.e., negative attitudes). One central finding of past research is that negative person-related information has a higher impact than positive information on impressions. Such a valence asymmetry is often explained by the idea that negative attributes are more informative. This dissertation approaches valence asymmetries in impression formation from a cognitive-ecological perspective. This perspective suggests that positive information is more frequent and less diverse than negative information in the information ecology. The present work investigates how these structural differences of positive and negative traits and attitudes influence peoples swiping decisions in online dating, interpersonal liking, and anticipated knowledge about other people. The findings suggest that the greater diversity of negative traits makes negative traits more informative for dating decisions than positive traits. However, the same diversity asymmetry makes people's positive attitudes more informative and revealing than their negative attitudes. This also helps to explain the novel finding that people show greater liking for those who share their positive attitudes compared to those who share their negative attitudes. Such a higher impact of positive attitudes aligns with the cognitive-ecological perspective and contrasts with predictions of previous research and models. This dissertation shows that negative information does not always dominate. It provides a new perspective on valence asymmetries in impression formation and person perception with implications for dating, initial encounters, and the initiation of interpersonal relationships.

Zusammenfassung

Die Bildung von Eindrücken über andere ist ein zentraler Bestandteil des sozialen Lebens. Diese Eindrücke entstehen bereits, wenn nur wenige Informationen über eine andere Person verfügbar sind. Eindrücke von neuen Bekannten werden durch deren Eigenschaften und Einstellungen beeinflusst, die in ihrer Valenz variieren können. Menschen können positive und negative Eigenschaften haben und ausdrücken, was sie mögen (d. h. positive Einstellungen) und was sie nicht mögen (d. h. negative Einstellungen). Ein zentraler Befund früherer Forschung ist, dass negative personenbezogene Informationen einen stärkeren Einfluss auf Eindrücke haben als positive Informationen. Eine solche Valenzasymmetrie wird häufig damit erklärt, dass negative Attribute informativer sind. Diese Dissertation betrachtet Valenzasymmetrien in der Eindrucksbildung aus einer kognitiv-ökologischen Perspektive. Diese Perspektive legt nahe, dass positive Informationen in der Informationsökologie häufiger und weniger divers sind als negative Informationen. In der vorliegenden Arbeit wird untersucht, wie diese strukturellen Unterschiede zwischen positiven und negativen Eigenschaften und Einstellungen Swiping-Entscheidungen beim Online-Dating, Sympathie und antizipiertes Wissen über andere Personen beeinflussen. Die Ergebnisse deuten darauf hin, dass die größere Diversität negativer Eigenschaften dazu führt, dass negative Eigenschaften informativer für Dating Entscheidungen sind als positive Eigenschaften. Die gleiche Asymmetrie in der Diversität führt jedoch auch dazu, dass die positiven Einstellungen von Personen informativer und aufschlussreicher sind als ihre negativen Einstellungen. Dies trägt auch dazu bei, den neuartigen Befund zu erklären, dass Personen mehr Sympathie für diejenigen zeigen, die ihre positiven (versus ihre negativen) Einstellungen teilen. Dieser stärkere Einfluss positiver Einstellungen steht im Einklang mit der kognitiv-ökologischen Perspektive und im Gegensatz zu Vorhersagen früherer Forschung und Modelle. Diese Dissertation zeigt, dass negative Informationen nicht immer dominieren. Sie bietet eine neue Perspektive auf Valenzasymmetrien in der Eindrucksbildung und Personenwahrnehmung mit Implikationen für Dating, erste Begegnungen und die Initiierung von Beziehungen.

Preface

The empirical part of this dissertation consists of one published paper (Chapter 5) and two manuscripts submitted for publication (Chapters 4 and 6). I wrote the introduction (Chapters 1 to 3), the specific introductions to the three empirical chapters (i.e., 4.1, 5.1, 6.1), and the general discussion (Chapter 7) specifically for this dissertation.

Chapter 4 is based on the following manuscript:

Zorn, T. J., & Unkelbach, C. (2024). *In the end, we all look for the same – On the frequency and similarity of traits in dating* [Manuscript submitted for publication]. Social Cognition Center Cologne, University of Cologne.

Christian Unkelbach and I collaborated on building the theoretical framework. We designed the studies together. I programmed all studies, collected the data and conducted the data analyses. I wrote the draft of the manuscript, Christian Unkelbach edited the draft and provided critical feedback to shape the manuscript.

Chapter 5 is based on the following published paper:

Zorn, T. J., Mata, A., & Alves, H. (2022). Attitude similarity and interpersonal liking: A dominance of positive over negative attitudes. *Journal of Experimental Social Psychology, 100*, 104281. https://doi.org/10.1016/j.jesp.2021.104281

Hans Alves, André Mata, and I developed the theoretical framework and the study designs together. I programmed all experiments. Hans Alves and I collected the data, and we both conducted all data analyses independently. Hans Alves and I wrote the manuscript together. André Mata provided critical feedback and helped to shape the manuscript.

Chapter 6 is based on the following manuscript:

Zorn, T. J., Unkelbach, C., Mata, A., & Alves, H. (2024). *Tell me what you like, and I will tell you who you are – Inferences about people based on their positive and negative attitudes* [Manuscript submitted for publication]. Social Cognition Center Cologne, University of Cologne.

Hans Alves, André Mata, and I collaborated on developing the theoretical framework and the study designs. Christian Unkelbach provided feedback on the framework and study designs and contributed to the interpretation of the results. I drafted the manuscript and Hans Alves contributed to shaping the manuscript draft. André Mata and Christian Unkelbach provided critical feedback to improve the final manuscript.

Some adjustments were made to the formatting and citation style to align with the dissertation's layout. However, the content of the paper and the manuscripts remained unchanged. The references for the paper and the manuscripts appear together at the end of the dissertation and are not separated by paper/manuscript.

Materials, preregistrations, data, and analysis code for the reported studies are available on the Open Science Framework (OSF).

OSF link Chapter 4: https://osf.io/yrxe3/?view_only=ab44954ab8d043ad9b48addabc18d97e

OSF link Chapter 5: https://osf.io/va6su/?view_only=b642c56c18b5485b8df76acf137f8ee0

OSF link Chapter 6: https://osf.io/f8nme/?view_only=f92fd9cca28b4cb4a46c5339122721d0

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General Introduction

People constantly form impressions of people they encounter, for example based on these people's traits or their expressed attitudes (Neuberg & Fiske, 1987). People's perceptions and impressions of others are essential for them to navigate through social life. These impressions can vary in whether they are favorable or unfavorable, and they shape likability of the target persons or attitudes and behaviors towards them in general (e.g., Macrae & Bodenhausen, 2000). Beyond first impressions and initial liking, these impressions influence whom people decide to interact with and whom they select as friends or partners. This demonstrates their significance. One central finding in impression formation and person perception research is that people do not weigh positive and negative person-related information equally. Rather, extensive research suggested a stronger impact of negative compared to positive information on people's impressions (e.g., Hamilton & Zanna, 1972; Kanouse & Hanson, 1972; Peeters & Czapinski, 1990; Skowronski & Carlston, 1987).

This dissertation investigates the differential impact of people's positive and negative attributes from a cognitive-ecological perspective. More specifically, the focus lies on people's positive and negative traits and their positive and negative attitudes (i.e., their likes and dislikes) towards various attitude objects (e.g., movies, literature styles, subjects in school, etc.). The cognitive-ecological account is based on the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019) and considers how evaluative (i.e., positive vs. negative) information differs in the information ecology. In short, positive information is more frequent and less diverse than negative information (for reviews, see Unkelbach et al., 2019, 2020). This dissertation explores how these structural differences allow for novel predictions about valence asymmetries (i.e., differences between positive and negative) for traits relevant in dating (Chapter 4), interpersonal liking based on shared positive versus negative attitudes (Chapter 5), and inferred knowledge about people based on their positive versus negative attitudes (Chapter 6). The scope of the present work thereby concentrates on the study of initial liking, evaluations and impressions at the earliest stages of

interpersonal contact, and situations in which minimal information about another person is available. Crucially, these novel predictions based on the EvIE model (Unkelbach et al., 2019) provide exceptions to the typical negativity dominance in perception and show a higher impact of positive (i.e., people's likes) than of negative attitudes (i.e., people's dislikes). Thus, this dissertation provides novel insights into how valence of people's attributes shapes the perceptions of individuals.

As the study of traits in dating and of people's positive and negative attitudes is embedded in the broader field of impression formation and person perception, I present classic and recent models, theories, and research in this field in the first chapter (Chapter 1). This chapter also gives an overview about determinants of interpersonal liking with a specific focus on the similarity effect, and reviews research on partner preferences beyond similarity. Chapter 2 introduces how positive versus negative information leads to differential effects (i.e., valence asymmetries) in various areas of psychology and demonstrates the predominant conception of negative information's stronger impact. Special attention is given to explanations for these valence asymmetries based on differential informativeness and diagnosticity of positive and negative person attributes. In Chapter 3, I introduce the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019), which serves as the foundation for all predictions in the subsequent empirical chapters (i.e., Chapters 4 to 6). Chapter 4 applies the EvIE model to traits relevant to dating and examines how traits' structural properties (i.e., frequency and diversity) influence dating decisions. Chapter 5 investigates whether shared positive or negative attitudes have more impact on interpersonal liking. In Chapter 6, predictions derived from the EvIE model regarding a differential amount of inferred knowledge based on people's positive and negative attitudes are empirically tested. In the final Chapter 7, I discuss the findings from previous chapters, future directions, and implications.

Chapter 1: Impression Formation and Person Perception

Research in the field of impression formation and person perception is manifold. It addresses various facets such as the question of how people integrate person-related information (e.g., traits, behavior) into coherent impressions, which factors influence the formation of impressions more than others, or what contributes to particularly favorable impressions such as initial liking. Researchers employed different kinds of methods to answer these questions.

To introduce classic research on impression formation and person perception, I first present work by Asch (1946) and Anderson (1965). They addressed how people integrate single pieces of information into coherent overall impressions and constituted the starting point of person perception research. Then, to offer insight into the forms that recent research in this field can take, I present a modern approach which tries to model people's impressions and attitudes with networks. Further, I introduce the class of attribution theories as one influential class of theories in impression formation and person perception that will also be relevant later on in this dissertation. Following this overview of models and theories, I review literature on interpersonal liking and the similarity effect, which build the theoretical framework for the empirical work in Chapter 5. The first chapter closes with an overview of partner preferences beyond similarity. This constitutes the research area in which the findings presented in Chapter 4 are embedded.

As the terms "impression formation" and "person perception" are used synonymously in the literature and mostly named both at the same time (e.g., Leyens & Fiske, 1994; Unkelbach et al., 2020), I also use both terms as a coherent term in my dissertation. Some researchers also argue that impression formation is the first, but not the only step in person perception (Brewer, 1988; Newman, 2001). I do not make such a distinction and refer to "impression formation and person perception" as an umbrella term for the field in which the research presented in my dissertation is embedded.

1.1 Models and Theories of Impression Formation and Person Perception

In the following, I present a selection of models and theories of impression formation and person perception. This selection is informed by its relevance to the subsequent chapters of this dissertation and aims to provide an idea of classic and modern approaches.

1.1.1 Classic Approaches

Research on impression formation and person perception goes back to the classical studies conducted by Salomon Asch (1946).

Asch's Gestalt View. Asch pointed to the importance of people's impression of others as "a precondition of social life" (Asch, 1946, p. 258) and aimed to answer the question of how people form these impressions. Therefore, Asch conducted ten experiments that all followed a similar procedure. For most experiments, the experimenter read a list of traits to the participants, and participants were asked to form an impression of a hypothetical person possessing these traits. Their task was to write a brief paragraph about their impression (i.e., open-ended measure), choose which of two adjectives from a series of antonym pairs better matches the person description (i.e., the trait list), or rank the traits according to how important they were for the overall impression. In later experiments, participants were also asked to give synonyms for traits or indicate the relation of traits.

Based on his findings, Asch noted that traits differ in how much weight they receive during the impression formation process. This weight depended on how central (vs. peripheral) the traits were for the overall evaluation (Studies 1 to 3). In his classic Study 1, for example, Asch showed that people perceive "warm" and "cold" as central traits that guide the overall impression. This centrality idea was followed up by many researchers. They supported the conception that central traits are more informative and therefore carry more weight in impression formation (e.g., Brown, 1986; Wishner, 1960; Zanna & Hamilton, 1972). However, Asch also stated that "the same quality which is central in one impression becomes peripheral in another" (Asch, 1946, p. 268). This change in the functional value (i.e., central vs. peripheral) resulted from a trait's relation to the other traits and was

thereby context-dependent (Study 4). Likewise, a trait's content quality changed in relation to its surrounding traits (Studies 5 and 10). For example, in Study 5, the trait "calm" was interpreted in a positive manner (i.e., as "serene" or "peaceful") when presented with other positive words but interpreted in a negative manner (i.e., as "cold" or "calculating") when presented with other negative words. With Studies 6 to 8, he was the first to demonstrate a primacy effect in person perception. People had a more positive impression of a target person if the first trait was positive (e.g., "intelligent") than if the first trait was negative (e.g., "envious"), although they saw the same six traits in both instances. Thus, the first trait presented guided the overall impression, and this effect of direction has been shown in various studies since then (e.g., Anderson, 1965; Briscoe et al., 1967; Forgas, 2011; Hamilton & Zanna, 1974; Zanna & Hamilton, 1977).

In sum, Asch concludes from his series of experiments that people form unified, coherent impressions (see also Asch, 1952; Asch & Zukier, 1984). Traits interact dynamically, influence each other and are interpreted in relation to each other. This conception that the content and functional value of a trait change depending on the context is consistent with a Gestalt approach (Wertheimer, 1938; for this interpretation, see also Nauts et al., 2014; Leyens & Fiske, 1994). A Gestalt approach assumes that the overall impression is more than the sum of its components (i.e., a person's traits). Thereby, Asch provided the first evidence against elemental summative models of impression formation and for a Gestalt model. These early experiments count as the "breakthrough in person perception" (Leyens & Fiske, 1994, p. 40). Until today, his basic methodology is used, and his personality impression task is still the dominant paradigm in person perception research (e.g., Nauts et al., 2014).

Anderson's Weighted Averaging Approach. Norman Anderson followed a mathematical approach to impression formation. He developed the algebraic information integration theory (e.g., Anderson, 1981) and investigated whether people use an averaging or an additive (i.e., summative) model to integrate information into a complex impression. In his classic study (1965), he provided evidence for an averaging model. He showed participants either two or four traits from a list of 32

adjectives. These stemmed from a list of 555 common and pre-rated personality traits and varied in whether they were positive or negative (i.e., valence) and in whether they were mildly or extremely positive or negative (i.e., polarization). In line with an averaging model and inconsistent with an additive model, participants rated target persons described with two moderately positive and two extremely positive traits as less likable than target persons described only with two extremely positive traits. Likewise, they rated target persons described with two moderately negative and two extremely negative traits as more likable than target persons described with only two extremely negative traits.

Essentially, Anderson's model proposes that how people respond to a person (or an attitude object) equals the weighted average of all individual cue values. He also formalized his assumptions in his *information integration theory* (e.g., Anderson, 1974, 1981). This raises the question of which cues people weigh more than others in impression formation.

One central factor influencing weight that was already noted in the classic study (1965) was the *valence* of traits. Negative traits received more weight than positive traits, which entered the literature as the terms *negativity bias* (e.g., Kanouse & Hanson, 1972; Skowronski & Carlston, 1989) or *negativity advantage* (e.g., Unkelbach et al., 2020). To illustrate, on a scale from -10 (very dislikable) to 10 (very likable), a person who is polite would receive a likability rating of 7, while a person who is unreliable would receive a rating of -7. A typical finding was that the combined impression of a person who was described with both traits (i.e., polite and unreliable) tended to be below zero (with zero having resulted from equal weighting). Since then, this notion of negative information's higher impact received considerable support (e.g., Anderson, 1974; Fiske, 1980; Hamilton & Huffman, 1971; Kanouse & Hanson, 1972; Peeters & Czapinski, 1990). As differences in valence and their impact on impressions are the key aspect I examined in my dissertation, I dedicated Chapter 2 as a separate chapter to the differential effects and weighting of positive and negative information in impression formation (see 2.1.2).

Besides the negativity bias, Anderson's studies, as well as subsequent work, also showed that extreme information receives more weight than moderate information (i.e., *extremity bias*; e.g., Fiske, 1980; Podell & Podell, 1963; Rosenberg et al., 1968; Skowronski & Carlston, 1989; Wyer, 1974). To illustrate, a person described as immoral (likability rating of -10 on the above-mentioned scale) and unorganized (likability rating of -2) would receive a worse overall rating than expected from the weighted average (e.g., a -8 instead of a -6). Fiske (1980) described Anderson's weighted averaging approach as "the most flexible and widely applicable algebraic model for the combining of person attributes" (p. 892).

I include Asch's (1946) and Anderson's (e.g., 1965) approaches as classics here because they built the base for all subsequent person perception research (e.g., Fiske, 1980) and shaped research in this area until today (e.g., Nauts et al., 2014). Anderson's work, in particular, nicely demonstrates classic valence asymmetries (i.e., differences between positive and negative information) which constitute the main theme of my dissertation (see also Chapter 2). Moreover, parts of Asch's paradigms, such as the presentation of trait lists and the following assessment of target person likability in controlled laboratory settings with high internal validity (Fiske et al., 2007) are still used in present-day person perception research (e.g., Nauts et al., 2014; for a similar argument, see Fiske, 1980).

1.1.2 Modern Approaches

To show how research on impression formation has developed and what shapes it can take, I briefly mention what modern research is concerned with. A modern approach is to use network models and to model attitudes to address the question of how people integrate person information to form attitudes about others (e.g., Dalege et al., 2016, 2017). For example, Dalege et al. (2016) developed the Causal Attitude Network (CAN) model as a formalized measurement model of attitudes. The general idea is that attitudes are organized as systems of evaluative reactions that causally interact with each other. These evaluative reactions can include feelings, beliefs, or behaviors towards the attitude object. The aim of these systems is to achieve a coherent

representation of an attitude object. Of note, evaluative reactions that are similar to each other are tightly clustered. These similar evaluative reactions in tight clusters influence each other more strongly than less similar evaluative reactions. Applied to traits in person perception, perceiving a person as helpful will more strongly contribute to perceiving this person as reliable, while it will not contribute to perceiving this helpful person as intelligent as strongly. Throughout this dissertation, I will refer to related ideas in terms of the connectedness of traits (in particular with regard to the difference in the connectedness of positive versus negative traits) and of person attributes in general (e.g., halo effects, see 3.2).

1.1.3 Attribution Theories

The classic approaches by Asch (1946) and Anderson (1965) already suggested that people do not weigh all person-related information equally when forming impressions. However, people form impressions about others not only based on these persons' traits but also, for example, based on their behavior. One factor that determines whether a person's behavior receives more or less weight for an overall impression of that person relates to how much inferences can be drawn from this behavior to the person's personality. This is the classic question that attribution theories address.

Attribution theories count as a class of influential theories of impression formation and person perception (Heider, 1958; Jones & Davis, 1965; Kelley, 1967, 1973). As previewed, they address under which conditions people attribute a person's behavior to this person's disposition (i.e., its personality including specific traits etc.) versus to a more temporary behavior of that person or the situation in which the behavior is shown (e.g., Wyer & Lambert, 1994).

Two general principles can be summarized. First, attributions of a behavior to the actor's personality often result from the belief that the actor shows this behavior consistently across different situations (Kelley, 1967). Accordingly, people attribute a behavior to the situation if other actors would show the same behavior in this situation, but not in other situations. For example, grimacing in annoyance when dropping a glass on the floor might be attributed to the mishap (i.e., the situation) instead of to a grim personality. If a person has a grim facial expression in every

situation, however, this rather suggests that this person has a grim personality. Second, a behavior is more likely attributed to a person's disposition if it differs from what is typically expected in that situation (i.e., from the social norm; Jones & Davis, 1965). For example, sitting alone at a party might be attributed to a shy personality, because the social norm at parties is to network and to interact with others.

Of note, attribution theory also has parallels to Anderson's information integration theory (e.g., Anderson, 1974, 1981). For example, Jones and Davis (1965) discuss the concept of informativeness (for a detailed explanation of this concept, see 2.2.1) which is closely related to the concept of weight in Anderson's information integration theory. Crucially, attribution theory also makes predictions for differential attribution of positive versus negative behaviors. I revisit these differential attributions in Chapter 2.

1.2 Interpersonal Liking

One component of a positive first impression of another person can be interpersonal liking (Hamilton & Huffman, 1971). Reviews on interpersonal liking (also: interpersonal attraction) often used the tripartite model (e.g., Berscheid, 1985) to describe attraction with an affective, behavioral, and a cognitive component (see Montoya & Horton, 2014). Montoya and Horton (2014) define interpersonal liking as the immediate and positive affective and/or behavioral response towards a target person that is influenced by cognitive assessments. This dissertation covers both; that is, (a) a behavioral component reflecting an individual's tendency to behave in a certain way towards the target person, mostly assessed as choices to affiliate (see Chapter 4) and (b) an affective component, mostly assessed as actual or perceived closeness/likability (see Chapter 5). However, note that none of the presented manuscripts assessed "hot" affective states such as feelings of infatuation or love. The focus lay on initial liking.

Interpersonal liking is not limited to sexual or romantic acquaintances, but can apply to a variety of different people including family members, friends, co-workers, or any random acquaintance. It is also immediate, distinguishing it from enduring interpersonal experiences such as

love, kinship or friendship (Montoya & Horton, 2014). These enduring experiences are not part of this dissertation's scope. Note that I use the terms *interpersonal attraction* and *interpersonal liking* interchangeably, which is in line with past research in this field (e.g., Berscheid & Walster, 1974; see also Montoya & Horton, 2014).

1.2.1 Determinants and Models of Interpersonal Liking

Whether liking occurs can depend on certain characteristics of another person (e.g., certain positive traits, see 1.2.3, or physical attractiveness, see below), but also on an individual's goals and needs (Eastwick, 2013) and on how the other person can fulfill these goals and needs (Miller, 2021). These aspects can change over time and across different kinds of relationships (e.g., Abele & Brack, 2013). For example, people value emotional closeness more for romantic contexts than for potential friends (Fuhrman et al., 2009).

A more fundamental assumption is that people like those who are beneficial or rewarding to them (Clore & Byrne, 1974; see also *rewards of interaction model* in 1.2.2). These rewards can be diverse and include both direct (e.g., money, attention, acceptance) and indirect rewards (e.g., via proximity or similarity). Indirect rewards are more subtle and may even influence liking without conscious notice. For example, Festinger et al. (1950) provided the classic demonstration that people tend to like (or get acquainted to, in the first place) people who are near them. Physical proximity is a relevant determinant of liking, although no factor that people would consider as such a determinant initially (e.g., Back et al., 2008; but see Miller, 2021).

Montoya and Horton (2014) suggested a *two-dimensional model of attraction.* This model includes the dependency of attraction on a person's goals, as stated above, as a capacity component of attraction, and combined that with a willingness component. The capacity component includes the assessment of whether the other person meets the current goals. The willingness component incorporates that attraction also depends on the belief (i.e., evaluation) that the other person is willing to fulfill the goals and needs. The overall attraction evaluation then results from an integration

of subjectively weighted cues regarding capacity and willingness aspects that depend on the individual's activated goals (see Brunswik, 1956; Buss & Schmitt, 1993).

Overall, the most prominent factors shaping interpersonal liking are (a) physical attractiveness, (b) reciprocity, and (c) similarity (Miller, 2021). As physical features, and biological factors in general, are not part of this dissertation's scope, I leave physical attractiveness (a) aside (but see 4.8.2, for a brief discussion of physical attributes). Reciprocity (b) means that people tend to like others who like them in return. This relates to the willingness component in the two-dimensional model of attraction (Montoya & Horton, 2014) and aligns with the conception of liking those who provide rewards (see above). Besides, reciprocity also aligns with Fritz Heider's *balance theory* (1946, 1958). Accordingly, people strive for balanced social relationships, and having mutual feelings for one another can be seen as one factor establishing such a balance. As the impact of similarity (c) on liking (i.e., similarity effect) is one focus of this dissertation (see Chapter 5), I present evidence and explanations for this attraction phenomenon in more detail in the following paragraph.

1.2.2 Similarity Effect

One central factor that contributes to interpersonal liking is similarity. People tend to like others who they perceive as similar to themselves. The so-called *similarity effect* or *similarity attraction effect* (e.g., Byrne, 1961, 1969, 1971, 1997) counts as one of the most robust phenomena in the attraction literature (Montoya & Horton, 2014), and according to Berger (1973), even as "one of the most robust relationships in all of the behavioral sciences" (p. 281). It was described as a fundamental rule of attraction (e.g., Byrne, 1971), the *law of attraction* (Byrne & Rhamey, 1965), as "one of the best documented generalizations in social psychology" (Layton & Insko, 1974, p. 149) and as "a paradigm that will not die" (Bochner, 1991, p. 484). Note that the similarity effect has also been criticized regarding its integrity. Some researchers raised concerns about methodological flaws (e.g., Bochner, 1991; Rosenbaum, 1986), others attributed the effect solely to demand characteristics (Sunnafrank, 1991), were unsure about the order of causality (Morry, 2005, 2007), or questioned its validity for actual interaction (Sunnafrank, 1983; Sunnafrank & Miller, 1981) or its influence on actual

beyond perceived attitudinal similarity (e.g., Tidwell et al., 2013; for a meta-analysis, see Montoya et al., 2008). We address this last question on the similarity effect's validity for perceived versus actual similarity in Chapter 5. More recently, the link between similarity and liking was also referred to as the *similarity attraction theory* (e.g., Froehlich et al., 2021; Van Hoye & Turban, 2015). The related general tendency to associate with socially similar others, also evolutionarily, is known as *homophily* in the literature (Fu et al., 2012; McPherson et al., 2001).

Across time, the similarity-attraction link was demonstrated for various areas including attitudes (e.g., Bond et al., 1968; Byrne et al., 1971; Tan & Singh, 1995), physical attractiveness (e.g., Peterson & Miller, 1980; Stevens et al., 1990; also known as *matching effect*), personality traits (e.g., Carli et al., 1991; Steele & McGlynn, 1979), hobbies (e.g., Jamieson et al., 1987; Werner & Parmelee, 1979), values (e.g., Lewis & Walsh, 1980) and also more specific areas, such as the taste in music (Boer et al., 2011). People even like others with incidental similarities such as those who have the same birthday (e.g., Cialdini & Goldstein, 2004; Finch & Cialdini, 1989; Jiang et al., 2010). The similarity effect was shown in different populations (e.g., Murstein & Beck, 1972; Tan & Singh, 1995). From a methodological perspective, it showed for real relationships in the field (e.g., Carli et al., 1991) and in laboratory settings (e.g., Byrne & Nelson, 1964; Storms & Thomas, 1977).

Explanations for the Similarity Effect. Researchers offered various explanations for the link between similarity and attraction. I present the most frequently provided explanations here.

Building on Heider's *balance theory* (1946, 1958), shared attitudes should foster positive feelings between people as having the same attitudes (either positive or negative) establishes psychological balance. This balance, in turn, leads to interpersonal attraction. The *repulsion hypothesis* proposed by Rosenbaum (1986) posits that the link between similarity and liking results from dissimilar attitudes creating repulsion. According to the *rewards of interaction model* (Davis, 1981; Werner & Parmelee, 1979), the information that someone is similar indicates that it is likely that rewards will follow. Shared experiences such as joint activities would constitute such a reward (Lott & Lott, 1974). For example, the shared love for Taylor Swift builds the ground to attend her Eras

Tour together. Likewise, sharing the passion for racing bikes allows to make bike tours together or to plan a trip to watch the Tour de France. This expectation of rewards then creates attraction. In line with the reciprocity idea (see 1.2.1), Condon and Crano (1988) offer the *anticipation of liking perspective* to explain why shared attitudes lead to liking. They argued that people like others with similar attitudes because they anticipate that similar others will like them, whereas they expect dissimilar others to dislike them. Interpersonal attraction then results from the anticipation of being liked.

Other prominent explanations for the similarity effect are provided by the *information processing perspective* (e.g., Ajzen, 1974; Kaplan & Anderson, 1973; Tesser, 1971) and Byrne's *reinforcement model* (1971). The information processing perspective relates to Anderson's information integration theory (see 1.1.1). It posits the similarity effect as a function of the valence and weight of information that people infer about another person based on their similarity or dissimilarity. If the inferred information is positive, then attraction results. Also, the more information one attribute conveys about the other person, the more weight it receives for the overall evaluation (Montoya & Horton, 2013). This perspective postulates that others who hold similar attitudes, traits, or other features have further attributes that are similar to their own. Because people typically evaluate their own attitudes positively, similarity gives rise to the expectation that the other person has further positive features. The inference of these positive features then leads to attraction.

Byrne's *reinforcement model* (1971) states that people have an effectance motive, which means that they strive for a consistent and logical worldview. People with similar attitudes fit into such a consistent view and thus satisfy the effectance motive. Thereby, they work as reinforcements, as they reassure people that their own world views are right. Reinforcement is associated with a positive feeling, which in turn leads to attraction. Dissimilar others, on the contrary, foster negative affect. This perspective focuses on affective processes (see also Montoya & Horton, 2013).

The information processing perspective and the reinforcement model count as the two explanations that received the most empirical support. In a meta-analysis, the results of 240 laboratory-based similarity studies were mostly consistent with predictions from the information processing account (Montoya & Horton, 2013).

More recently, Montoya and Horton (2014) suggested *their two-dimensional model of attraction* (see 1.2) as a suitable framework to explain the similarity effect. Accordingly, its capacity component reflects the main idea of the information-processing perspective (Kaplan & Anderson, 1973), while its willingness component is in line with Condon and Crano's (1988) anticipation of liking perspective.

Moderators of the Similarity Effect. As to be expected from the prominence of the similarity effect, a lot of researchers were also interested in moderators of the effect (for a review, see Montoya et al., 2008). Perceived similarity seems to be more important than actual similarity for likability (for speed-dating demonstrations, see Luo & Zhang, 2009; Tidwell et al., 2013; for a meta-analysis, see Montoya & Horton, 2013). Also, culture and domain influence the similarity effect (Miller, 2021). For example, the effect is stronger for similar attitudes than for similar personality traits (Watson et al., 2004).

Further, researchers found that attitudes that people perceive as more important or central to them also lead to a stronger similarity effect (e.g., Bahns et al., 2017; Montoya & Horton, 2013). Supporting the centrality aspect, a recent study showed that making similar experiential purchases fosters more closeness than making similar material purchases, because experiential purchases are more central experiences to people's identity (Kumar et al., 2024).

As another moderator, Alves (2018) and Vélez et al. (2019) demonstrated that attribute frequency—that is, how common or rare attributes are in the social environment—influences the similarity effect: Sharing rare attitudes attracts more than sharing common ones. Vélez et al. (2019) state that "in addition to the many cultural and emotional factors that drive mutual attraction, these

results suggest that people's decisions about with whom to interact are systematically influenced by the *statistics* of the social environment" (p. 1).

Most relevant for the empirical work in Chapter 5, findings by Bosson et al. (2006; Weaver & Bosson, 2011) suggest that the valence of shared attitudes also influences the similarity effect. The valence of people's attributes is the central topic of my dissertation and Chapter 5 deals with differential effects of positive versus negative attitudes for the similarity effect. Therefore I discuss Bosson et al.'s findings separately and in detail in Chapter 2 (see 2.1.2).

Taken together, various factors contribute to interpersonal liking. So far, special attention was given to the effect that people like those who are similar to themselves. However, interpersonal liking also results from other factors beyond similarities. The following paragraph presents an overview of the qualities that people find likable in potential partners. These may act above and beyond, or independent of the effects of similarities on liking.

1.2.3 Partner Preferences Beyond Similarity

While the previous research on interpersonal liking and on the similarity effect can be applied to all kinds of interpersonal encounters (e.g., friends, family members, etc.), the following section focuses on partner preferences in a romantic context, and does not consider similarity further.

Overall, people seem to agree on certain attributes that they prefer in others. For example, a good sense of humor showed up as a relevant quality for attracting potential mates (Buss, 1988). On the level of standard personality variables, both men and women value agreeableness, kindness, warmth, expressivity, openness, and intelligence (Bryan et al., 2011; Li et al., 2002; Li & Kenrick, 2006; Sprecher & Regan, 2002). In cross-cultural studies, people mostly preferred values related to the other person's benevolence (e.g., loyalty, forgiveness, honesty, helpfulness; Schwartz, 1992; see also Schwartz & Bardi, 2001). Across various different relationship types, trust-related traits seem to be highly desired (Buss & Barnes, 1986; Cottrell et al., 2007). More recent research classified seven key qualities, termed dealmakers, for partner choice: warmth, attractiveness, intelligence, stability,

passion, dominance, and high social status (Csajbók & Berkics, 2017). Another recent set of studies highlighted the significance of partners making an effort to show genuine interest in each other and the desire to get to know the potential partner (Schroeder & Fishbach, 2024).

From an evolutionary perspective, researchers state that people like to affiliate with those who are intelligent (Buss, 1989), healthy (Thiessen & Gregg, 1980), and earn good money (Buss & Barnes, 1986). Also, a large body of research showed gender differences; for example, a stronger focus on physical attractiveness for men than for women and a stronger focus on social status and dominance for women than for men (Buss & Barnes, 1986; Buss & Schmitt, 1993; Li et al., 2002). In my dissertation, I left gender differences as well as evolutionary versus sociocultural explanations for gender differences (e.g., Miller, 2021, p. 269) aside (for a justification why not to include these factors, see 4.1.2).

In sum, as the positive framing of the term “partner preferences” already suggests, past research mainly focused on positive partner qualities; that is, on what people search for in potential partners (e.g., Buss, 1989; Li & Kenrick, 2006; Thomas et al., 2020). However, a look on the negative side of what people avoid in potential partners may offer further insights. So far, the amount of research on these so-called dealbreakers (e.g., Jonason et al., 2015, 2020) is limited. For example, to complement their research on the seven dealmakers for partner choice (see above), Csajbók and Berkics (2022) identified seven dealbreakers, or “red flags”, in a Hungarian sample: hostility, unambitiousness, filthiness, arrogance, clinginess, and abusiveness. This was updated by six factors in a subsequent study based on a US sample (Csajbók et al., 2023). Csajbók et al. (2022) stressed that “the introduction of negative traits into mate choice prediction will significantly improve this field” (p. 12). Thus, it seems worthwhile to not only consider positive but also negative person-related information (e.g., traits, attitudes) in the study of interpersonal liking. The following Chapter 2 focuses on this distinction between positive and negative person attributes and its influence on impression formation and person perception.

Chapter 2: Positivity Versus Negativity in Impression Formation and Person Perception

One central aspect of human behavior is to evaluate whether information is good (i.e., positive evaluation) or bad (i.e., negative evaluation; e.g., Barrett, 2006). I use these terms in line with Unkelbach et al.'s (2020) definition, which is based on Lewin (1943) and his approach to see organisms as interacting with their environment. That is, input is evaluated as good (i.e., positive) if it serves an individual's goals and needs and as bad (i.e., negative) if it hurts its goals and needs. If positive evaluations result, these are perceived as pleasant, beneficial, or desirable, while negative evaluations accompany unpleasant, harmful, or undesirable feelings (see also Baumeister et al., 2001). Relevant for perception and impression formation, people can have positive (e.g., kind) or negative (e.g., lazy) traits, and people can evaluate these traits of other people positively or negatively respectively. Such evaluations are, for example, measured as choices to affiliate (see Chapter 4). Likewise, people can have positive or negative attitudes (i.e., likes or dislikes) regarding various different attitude objects such as other people, food, movies, activities, and so on. Based on these positive and negative attitudes, other people may find these persons likable (i.e., positive evaluation) or dislikable (i.e., negative evaluation; see Chapter 5), or infer more or less knowledge about these persons' personality (see Chapter 6).

Chapter 2 presents existing evidence for differential effects of positive and negative information (i.e., valence asymmetries, but see below) in impression formation and person perception. In addition, it outlines the most prominent explanations for these differential effects. The chapter concludes with an outlook on the scope of the dissertation.

2.1 Valence Asymmetries in Impression Formation and Person Perception

One classic finding about evaluative information in general is the existence of valence asymmetries (e.g., Kanouse & Hanson, 1972; Peeters, 1971; Peeters & Czapinski, 1990).

2.1.1 Definition of Valence Asymmetries

Valence asymmetries describe the phenomenon that positive and negative information (e.g., stimuli, behaviors, attitudes, traits) are not created equal. Instead, one of the two kinds of valent information (i.e., positive or negative information) is more impactful than the other kind (e.g., Vaish et al., 2008). This differential impact is evident at various levels of human functioning. On the level of information processing, the term valence asymmetries describes the differential processing of positive and negative information (for reviews and overviews, see Kanouse & Hanson, 1972; Peeters, 1971; Peeters & Czapinski, 1990). The differential processing is visible at the stages of attention, processing speed, memory, learning, and attribution (for an overview, see Unkelbach et al., 2020).

In this dissertation, I refer to valence asymmetries as all cases in which differences between positive and negative attitudes, traits, behaviors, etc. occur. I focus on valence asymmetries that occur for traits in dating (Chapter 4), for shared and unshared attitudes in the context of similarity effects (Chapter 5), and for the amount of knowledge that is inferred about people based on their positive and negative attitudes (Chapter 6).

Valence asymmetries can occur both as a higher impact of negative (i.e., *negativity advantage* or *negativity bias*) and as a higher impact of positive information (i.e., *positivity advantage* or *positivity bias*). Parallel to the terminology used by Unkelbach et al. (2020), I will use the terms *positivity advantage* and *negativity advantage* to describe instances in which positive or negative information has a higher impact and more influence than the other. Throughout the dissertation, however, the term *negativity bias* will also appear (e.g., in the manuscripts presented in Chapters 4 and 6). Similar to Unkelbach et al. (2020), I also note that the terms *bias* or *advantage* have their downsides (see Corns, 2018). They imply that something is better than something else in any case and unconditionally, which is rarely the case. Rather, it mostly depends on the context and situation to determine whether something is advantageous or not. A more accurate way is to speak of differential processing; that is, people differently attend to positive compared to negative

information. This also highlights the relative nature of valence asymmetries. For the sake of readability, however, I will still use the terms *positivity advantage* and *negativity advantage*.

In the following, I present existing evidence for positivity and negativity advantages with a focus on person perception and impression formation. This evidence also builds on classic findings mentioned in Chapter 1. The main message here is that negativity advantages seem to dominate.

2.1.2 Negativity Advantages

Negativity advantages (also *negativity biases*, see Kanouse & Hanson, 1972; or *negativity dominance*, see Rozin & Royzman, 2001) refer to the broad and widely-accepted psychological phenomenon that negative information is more causally efficacious (e.g., Corns, 2018). This is summarized under the famous notion that "bad is stronger than good" (Baumeister et al., 2001, p. 323). For example, a hair on the plate can ruin the whole meal, and getting an upset stomach following a certain kind of food can make this food unenjoyable for the following couple of months or forever. Applied to the interpersonal domain, one serious derogatory comment can destroy a friendship, or a stressful encounter with an acquaintance can spoil the mood for a whole day or even longer. On the contrary, a strained relationship towards a work colleague does not turn into a close friendship by a single nice gesture. In their extensive review, Baumeister et al. (2001) considered cognitive, affective, and perceptual phenomena to conclude that bad (i.e., negatively valenced) information or events receive more attention and are more thoroughly processed on a cognitive level than good (i.e., positively valenced) information (for another review of negative information's stronger impact, see Rozin & Royzman, 2001).

Negativity advantages exist in various areas of psychology including attention (e.g., Pratto & John, 1991), memory (e.g., Alves et al., 2015), evaluation of risks and risk-taking behavior (e.g., Kahneman & Tversky, 1979), attribution (e.g., Feltz, 2007; Knobe, 2003), and most importantly for this dissertation, in impression formation and person perception (e.g., Fiske, 1980; Peeters & Czapinski, 1990; for an overview, see Kanouse & Hanson, 1972). I present evidence for this field in more detail below (for a detailed review of the other areas, see Unkelbach et al., 2020). Indeed,

within social psychology, the areas of person perception and impression formation provide the most prominent examples of the greater impact of negative information. People seem to weigh negative information more than positive information in interpersonal evaluations (e.g., Anderson, 1965; De Bruin & van Lange, 2000; Peeters & Czapinski, 1990; Skowronski & Carlston, 1989; Vonk, 1993).

Weighting of Traits and Forming Impressions. Valence asymmetries in impression formation and person perception are already evident in Asch's (1946) and Anderson's (1965) early work showing that people weigh negative traits more than positive traits (see 1.1.1; for a replication of negative trait's stronger weighting, see also Hodges, 1974). This indicates the classic valence asymmetry of a stronger impact of negative information on likability evaluations (see also Hamilton & Huffman, 1971; Hamilton & Zanna, 1974; Vonk, 1993).

Further support stems from Fiske (1980), who demonstrated that negative behaviors attract more attention and are weighed more than positive behaviors when forming impressions. Thereby, they more strongly shaped the likability of target persons (Fiske, 1980). Similarly, participants requested more positive than negative information about a target person when asked to form an impression about this person (Yzerbyt & Leyens, 1991). This indicates that negative information was more influential for the final response.

Additional negative trait information also modified existing impressions more strongly than additional positive trait information. A study by Feldman (1966) showed a stronger change in impressions when a negative trait was added to an already existing trait (positive or negative) that described a target person. Adding a second positive trait did not change the impression as much in the positive direction as the negative trait changed the impression to the negative. Similarly, sharing a negative attitude with a stranger more strongly changed an attitude about a target in a negative direction than sharing a mixed or positive attitude changed the attitude in a positive direction (Yoo, 2009). Further supporting the stronger weight of negativity in impression formation, an already existing negative first impression was shown to be more resistant to change than a positive first impression (Briscoe et al., 1967).

Intergroup Contact and Stereotypes. Falling more generally under the umbrella of person perception, a recent meta-analysis on intergroup contact revealed that the effect of negative contact leading to higher prejudice was larger than the effect of positive contact in order to reduce prejudice (Paolini et al., 2024). Also, people find negative stereotypes more informative for their decision whether someone belongs to their in- or an outgroup (Leyens & Yzerbyt, 1992), again demonstrating more weight of negative information.

Traits in Dating. Although research on negative (as opposed to positive) traits in dating is generally sparse (see also 1.2.3), some studies in this new research field suggest a negativity advantage in that negative traits have a higher impact than positive traits. For example, Zuckerman and Sinicropi (2011) showed that learning negative traits of a potential partner had a stronger effect on the overall perception of that partner than learning positive traits. Similarly, Jonason et al. (2015) found that people weigh negative traits (i.e., dealbeakers), more than positive traits (i.e., dealmakers), in their decision whether to accept or reject a target person. In a subsequent paper, dealbreakers influenced participant's level of interest in a target person more strongly than dealmakers (Jonason et al., 2020).

Similarity Effect. As previewed above (see 1.2.2), Bosson et al. (2006) suggested that the valence of shared attitudes influences the similarity effect. They stated that sharing negative attitudes bonds stronger than sharing positive attitudes (Bosson et al., 2006; Weaver & Bosson, 2011). Bosson et al. (2006) drew this conclusion from their findings that (a) participants recalled to share more negative than positive attitudes about other people with their closest friends, and (b) participants felt closer to a stranger when they shared a negative compared to a positive attitude towards a target person. Note that this only showed for weak attitudes.

Similarly, Weaver and Bosson (2011) found that participants perceived more closeness towards an imaginary target person when the target shared the same negative attitude about a professor they both knew compared to when the target shared the same positive attitude about this professor, and this effect was mediated by perceived familiarity towards the other person sharing

the negative attitude. Note that they only examined attitudes towards people (i.e., professors) and again, their findings only applied to weakly-held attitudes.

This evidence for "interpersonal chemistry through negativity" (Bosson et al., 2006, p. 1) can be interpreted as a negativity advantage in person perception and impression formation. The authors derived their prediction from the classic research on the stronger weighting of negative information during impression formation that I presented above (e.g., Hamilton & Zanna, 1972; Peeters & Czapinski, 1990). They refer explicitly to the study by Anderson (1965), the work of Fiske (1980), and Baumeister et al.'s (2001) review of "bad is stronger than good". Further supporting the strong impact of shared negative attitudes, a longitudinal study suggested that adolescents tend to form and maintain friendships based on mutually disliked persons (Rambaran et al., 2015).

2.1.3 Positivity Advantages

Positivity advantages describe instances in which positive information has more impact than negative information. They seem to be less prominent than negativity advantages, which is also stated explicitly in a lot of research (e.g., Rozin & Royzman, 2001; Skowronski & Carlston, 1989; Wojciszke et al., 1993). Unkelbach et al. (2020) even called them "the step-child" (p. 133) of valence asymmetries. Still, there is evidence for positivity advantages, for example, for processing speed and memory (e.g., Balota et al., 2007; Bargh et al., 1992; Unkelbach, 2012; Unkelbach et al., 2010; for a review, see Unkelbach et al., 2020). Note that the higher impact of positive compared to negative information is not the same as what Fiske (1980) called a *chronic positivity bias* in her paper. She used that term to describe the higher frequency of positive person cues in self-reports (due to impression management efforts; e.g., Jones et al., 1974) and in ratings and descriptions of other people. Similarly, Boucher and Osgood (1969) stated that individuals tend to form positive impressions of others they do not know. I refer in more detail to such a general positivity prevalence in Chapter 3 (see 3.1.1).

In the following, I present existing evidence for positivity advantages for traits in dating. As evident from the presented research, there is much less evidence for positive information's higher impact in this field.

Traits in Dating. Contrary to the studies that showed that people weigh dealbreakers more than dealmakers in their evaluations of potential partners (Jonason et al., 2015, 2020; Zuckerman & Sinicropi, 2011; see 2.1.2), findings from a recent study by Csajbók and Berkics (2022) are rather in line with a positivity advantage. Participants were asked to choose which characteristics from a list of seven positive and seven negative potential partner characteristics they wanted to learn about first (second, third, etc.). Participants wanted to learn first about their potential partner's dealmaker characteristics, which they interpreted as evidence for a higher importance of people's positive attributes (Csajbók & Berkics, 2022). Thus, taken together, the results concerning whether positive or negative traits weigh more in dating are mixed. In the empirical work presented in Chapter 4, we refer to this question of whether positive or negative traits are more important in dating.

2.2 Explanations for the Differential Impact of Positive and Negative Information

Phylogenetic Explanations. One classic explanation for the higher impact of negative information that also applies to impression formation and person perception is an evolutionarily developed adaptive sensitivity for negative events or information. This developed because negative events were, on average, more harmful than positive events were beneficial for survival (Baumeister et al., 2001; Rozin & Royzman, 2001). Overlooking an approaching predator was more harmful, as it could have cost lives, than overlooking a cute wild animal. Similarly, applied to traits, choosing a malignant and abusive mating partner could impair both the own and the offspring's lives, or even cost lives (e.g., femicides), while overlooking a suitable and benevolent mating partner would, at worst, mean having to continue the search for a partner. Consequently, people pay more attention to negative stimuli as this can constitute a reproductive advantage. Negative stimuli also elicit a stronger affective reaction which, in turn, leads to deeper processing and more differentiated mental representation (e.g., Taylor, 1991).

Jonason et al. (2015, 2020) also followed this evolutionary approach to explain why people found dealbreakers more important than dealmakers (see 2.1.2). They referred to *error management theory* which suggests that across evolutionary time, systems to avoid losses in mate choice evolved (Haselton & Buss, 2000). Applied to the context of positive and negative partner features, Jonason et al. (2015, 2020) argued that people may be primarily sensitive to mating cost information and secondarily sensitive to mating benefit information. Such a phylogenetic explanation locates the cause of negativity advantages inside the information-processing individual and suggests that negative information triggers stronger affective and motivational reactions (Unkelbach et al., 2020).

Explanations Based on Negative Information's Correlates. Another set of explanations builds on cognitive models and relies on factors that are intertwined with the negative valence. Unkelbach et al. (2020) describe these as "correlates of valence" (e.g., p. 145) in their review of valence asymmetries. That is, negative information is assumed to be less frequent, more extreme, more surprising, less expected, and more intense than positive information (for reviews see Matlin & Stang, 1978; Unkelbach et al., 2019). These explanations have no phylogenetic origin but are likely learned ontogenetically (see Unkelbach et al., 2020).

The main argument here is that the greater impact of negative information does not stem from its negative valence per se. Instead, it arises from the processing advantages associated with stimuli that are less frequent and more extreme, surprising, unexpected, and intense. These characteristics attract more attention, receive more elaboration, and are consequently remembered better, regardless of their valence (e.g., Peeters & Czapinski, 1990; see also Unkelbach et al., 2020). I refer to the frequency argument in more detail below as it is a central part of the ecological model that I present in Chapter 3 (see 3.1.1).

An interesting implication of these explanations is that negativity advantages should reverse into positivity advantages if positive information is less frequent and more extreme, surprising, and intense than negative information (see Unkelbach et al., 2019, 2020, for this argument). There is

indeed evidence that this is the case. For example, Shin and Niv (2021) showed that positive information is more impactful than negative information in social evaluations if it is rarer.

Most relevant to explain when positivity and negativity advantages occur in impression formation are explanations based on the informativeness and diagnosticity of information. In person perception, it is assumed that informative or diagnostic information is given priority for the integration of person information (e.g., Bassok & Trope, 1984; Fiske et al., 2007; Reeder & Brewer, 1979). These two concepts of informativeness and diagnosticity are hard to disentangle and are often used interchangeably and in the same vain in the literature (e.g., Unkelbach et al., 2020; Vaish et al., 2008; Wojciszke et al., 1993). In the following, I use the terms consistently with how the authors originally used them. Thus, I present evidence for the informativeness and the diagnosticity account in two separate sections. For the following dissertation, I do not strictly distinguish between both terms as I think they mirror the same and address the same question: How much information is inferred about a person (e.g., their personality, but also other traits, behaviors, attitudes, etc.) based on a piece of information (e.g., a trait, an attitude)?

2.2.1 Informativeness

The informativeness account suggests that the impact of information (e.g., a person's positive or negative attitudes) depends on how informative the information is. Thus, negativity advantages follow when negative information is more informative, and positivity advantages follow when positive information is more informative.

Correspondent inference theory (Jones & Davis, 1965) suggests why negative information is often perceived as more informative in person perception. I first present the theory with its assumptions and then explain how it is used to explain the typical notion of negative information's higher informativeness. Belonging to the class of attribution theories (see 1.1.3), Jones and Davis' (1965) correspondent inference theory explains how people determine whether behavior reflects personality (i.e., internal or dispositional attribution) or is situational (i.e., external attribution). Behavior is considered informative about a person's personality if it is not typically shown or

expected by most people in this situation. This aligns with Kelley's (1973) discounting principle, which states that "the role of a given cause in producing a given effect is discounted if other plausible causes are also present" (Kelley, 1973, p. 113). For example, if someone receives a good grade for a tough exam, this person might grin broadly and look very happy. However, everyone would be pleased to receive a good grade on a tough exam. Therefore, this behavior would not necessarily mean that the person has a happy personality in general. Kellerman (1984) labels expected behavior in a situation *normative* and unexpected behavior *non-normative* (see also Hamilton & Huffman, 1971, for an empirical test of non-normative behavior's higher influence) and links both behaviors to differential informativeness:

> Normative behavior lacks informativeness for attribution of personality traits as it is unclear to the social observer whether the behavior is situationally induced, socially influenced, or a reflection of the social actor's personality. On the other hand, non-normative behavior by definition fails to conform to social norms and consequently is viewed as being indicative of an individual's personality. (Kellerman, 1984, p. 344)

The connection to valence asymmetries is achieved by considering normative behavior positive and non-normative behavior negative. This follows from a general positivity prevalence (see 3.1.1, for more details). Positive, or socially desirable (i.e., normative) behavior, is the status quo and happens more frequently than negative, or socially undesirable (i.e., non-normative) behavior. It follows that negative behavior should be more informative about a person than positive behavior.

Following up on the correspondent inference theory (Jones & Davis, 1965), Fiske (1980) also explained the dominance of negative over positive information in person perception with higher informativeness of negative person-related information. She considers person-related information (e.g., traits, behaviors, attributes) to be informative if it can serve to distinguish a person from most other people. If people show negative behaviors (attributes, etc.), this distinguishes them from most other people, because negative behaviors occur less frequently than positive behaviors. She derived the higher informativeness of negative behaviors from the higher frequency of positive outcomes

(based on range-frequency theory by Parducci, e.g., 1965; see also Kanouse & Hanson, 1972), and figure-ground hypothesis (e.g., Wertheimer, 1938). Negative information constitutes the figure (in Gestalt terms, see Wertheimer, 1938) that stands out from the common ground of positivity. In Gestalt psychology, the figure generally pops out, is more salient, and thereby grabs more attention (Wagemans et al., 2012). The figure-ground hypothesis is frequently used to explain the higher weight of negative information in impression formation (Kanouse & Hanson, 1972; Kellerman, 1984). To illustrate, if one has to decide whether another person is a suitable partner or not, it is not informative to experience this person being kind, because most people are kind most of the time. It is more informative to experience this person being rude, because this could directly lead to the decision not to consider the person as a partner.

2.2.2 Diagnosticity

Strongly tied to the informativeness concept, some researchers argued that the impact of person-related information (e.g., behavior, attributes, etc.) depends on its diagnosticity, independent of its valence. Thus, negativity advantages only result if negative information is more diagnostic. On the contrary, positive advantages should follow if positive information is more diagnostic.

One factor influencing whether a piece of information is diagnostic is its context (Reeder & Brewer, 1979; Skowronski & Carlston, 1987). In line with this notion, Skowronski and Carlston (1987) suggested a *cue-diagnosticity model* of impression formation. Accordingly, information (i.e., a cue; e.g., a certain behavior) is informative about a person if it allows to assign this person to a certain trait category. Diagnostic traits receive more weight in impression formation in terms of Anderson's weighted averaging model (e.g., Anderson, 1981). Skowronski and Carlston (1987) found that negative information was more diagnostic in the morality domain, while positive information was more diagnostic in the ability domain. In their demonstration, participants' task was to indicate whether a person with specific traits (i.e., honest and dishonest in the morality domain; intelligent and stupid in the ability domain) would show a behavior that varied in how honest/dishonest or intelligent/stupid it was. In the morality domain, negative (immoral) behavior is typically only shown

by immoral people (i.e., thereby more diagnostic and influential), while positive (moral) behavior can be shown by both moral and immoral people. In the ability domain, positive (intelligent) behavior is typically only shown by intelligent people (i.e., thereby more diagnostic and influential), while negative (stupid) behavior can be shown by both intelligent and stupid people.

The *schematic model of dispositional attribution* (Reeder & Brewer, 1979) similarly assumes that negativity advantages occur for information integrated in the morality domain, and positivity advantages occur for information referring to competence-related target qualities. As Unkelbach et al. (2020) put it:

> Liars will sometimes tell the truth [positive behavior in the morality domain = not diagnostic], but an honest person should never lie [negative behavior in the morality domain = diagnostic]. Conversely, an intelligent person will sometimes behave stupidly [negative behavior in the ability domain = not diagnostic], but a stupid person cannot act smartly [positive behavior in the ability domain = diagnostic]. (Unkelbach et al., 2020, p. 146)

To follow up on their initial demonstration, Skowronski and Carlston (1989) proposed the *category diagnosticity approach* as a model to quantify when positive and when negative information should have more impact. The approach states that negative cues are more influential whenever people implicitly hypothesize that negative cues are more diagnostic, and this is domain- and context-dependent. Thus, the diagnosticity of behaviors depends on people's perceptions of how likely behavioral cues are characteristic of specific trait categories.

Whether positive or negative information is more diagnostic also relates to the accessibility of information. This argument mainly appears in communication and consumer research (e.g., Gershoff et al., 2003, 2006; Herr et al., 1991) in which people can consult "agents" for advice concerning purchases. Gershoff et al. (2003, 2006) explained the positivity effect that they showed in agent evaluation with greater accessibility of information about loved, compared to hated alternatives in memory (see also Herr & Page, 2004). Liked attitude objects (in this case consumer products) are surrounded by a more extensive and accessible semantic network than disliked

attitude objects. Gershoff et al. (2003) also stated that likes have a "deeper and richer preference structure" than dislikes (p. 164). As a result, previous agreement on liked rather than disliked attitude objects is more informative and, therefore, more diagnostic for predicting future decisions. In addition, consumers also perceive that indicating what they like is more revealing about their taste (see Gershoff et al., 2006). This matches the *accessibility-diagnosticity framework* positing that the more accessible information is, achieved via more elaboration of information, the more it influences judgment and decision-making (Feldman & Lynch, 1988; Herr et al., 1991).

2.3 Outlook

In this chapter, I presented evidence and explanations for the differential impact of positive and negative information in impression formation and person perception. As evident, there is more evidence for a higher impact of negative than of positive information. Similarly, most explanations focused on explaining the higher impact of negative information. This matches the prominent notion that negative social information influences people's evaluations more strongly than positive information (e.g., Bruckmüller & Abele, 2013; Peeters & Czapinski, 1990; Vaish et al., 2008). Baumeister et al. (2001) called their notion that "bad is stronger than good" to be "a disappointingly relentless pattern [and that] this difference may be one of the most basic and far-reaching psychological principles" (p. 362). In this dissertation, I question this universal conception and contribute to the existing research on positivity and negativity in impression formation and person perception by demonstrating novel positivity advantages (Chapters 5 and 6). In the following, I present the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019) as the ecological model on which the predictions in all three empirical chapters (i.e., Chapters 4 to 6) are based.

Chapter 3: A Cognitive-Ecological Perspective

I approached the differential impact of positive and negative information in impression formation and person perception from a cognitive-ecological perspective based on the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019). This perspective allows to predict both cases in which negative information is more influential (see Chapter 4) and cases in which positive information is more influential (see Chapters 5 and 6). In this chapter, I first present the EvIE model with a focus on its proposed diversity principle. The explanations for the diversity principle, in particular, mirror how we delineated the positivity advantages in Chapters 5 and 6. Lastly, I present how the model relates to the empirical work that I will present in Chapters 4 to 6. That is, I briefly describe (a) how we applied the EvIE model to traits in dating as one classic area in person perception and impression formation (see Chapter 4) and (b) how we derived predictions from the EvIE model about a positivity advantage in the similarity effect (see Chapter 5) and a positivity advantage in how much people infer to know about others based on their positive and negative attitudes (Chapter 6).

3.1 The Evaluative Information Ecology (EvIE) Model

The EvIE model is a model of the social environment (Unkelbach et al., 2019). It makes two assumptions about the structural properties of evaluative (i.e., positive or negative) information: (a) positive information is more frequent than negative information and (b) negative information is more diverse and less similar to other negative information than positive information is to other positive information (e.g., Alves et al., 2017a, 2017b; Koch, Alves, et al., 2016; Unkelbach, 2012; Unkelbach et al., 2008, 2019, 2020). According to Unkelbach et al. (2019), the EvIE model should apply to all areas involving evaluations (i.e., affective states like emotions or moods, interpersonal relations, social situations, activities, etc.). There is substantial evidence for both principles, which I review below. The predictions for the empirical chapters (Chapters 4 to 6) mainly build on the

diversity principle. Thus, I review evidence for the diversity principle as well as explanations for the differential diversity in more detail and review the frequency principle more briefly.

3.1.1 Positivity Frequency

The frequency principle (i.e., positivity frequency) states that positive information (e.g., stimuli, behavior, attributes) is more frequent than negative information (e.g., Campbell et al., 1976; Peeters, 1971; Sears, 1983). Evidence mainly stems from affective experiences and psycho-lexical research. People are more often in a positive than in a negative mood (Thomas & Diener, 1990) and report on average more positive than negative affect (Brans et al., 2013). In short, most people are happy most of the time (Diener & Diener, 1996; Diener et al., 2018; see also Boucher & Osgood, 1969, for the Pollyanna hypothesis). Reflecting these affective findings, a robust literature showed a higher frequency of positive than negative words in language (e.g., Augustine et al., 2011; Boucher & Osgood, 1969; Dodds et al., 2015; Johnson et al., 1960; Warriner & Kuperman, 2015; see also Zajonc, 1968, for his description of the mere exposure effect). Most relevant to this dissertation, the greater prevalence of positivity also shows in social interactions and impression formation (Denrell, 2005). People rather expect positive than negative behaviors from others (Sears, 1983), more often evaluate others positively than negatively (Imhoff et al., 2018; Rothbart & Park, 1986), and more often use positive than negative attributes to describe others (Ric et al., 2013). In Chapter 4, I present our contribution to the evidence for the higher frequency of positive information in the domain of person perception and impression formation. We investigated frequencies of positive and negative traits in dating and examined whether the positivity frequency also applies here (see Chapter 4).

3.1.2 Negativity Diversity

The diversity principle (i.e., negativity diversity) states that positive information (e.g., stimuli, behavior, attributes) is more similar and less diverse than negative information (Alves et al., 2016, 2017b; Koch, Alves, et al., 2016; Unkelbach et al., 2008). For example, across different categorical theories of basic emotions, there are, on average, three times more negative than positive emotions (Ortony & Turner, 1990; see also Rozin & Royzman, 2001, for an overview). This shows more

differentiation on the negative side (Izard, 1971; for an overview, see Izard, 2009). In language, the vocabulary for negative information is more diverse (Clark & Clark, 1977; Rozin et al., 2010), which follows logically from the markedness principle (see Bybee, 2010, for an overview). Positive states represent the unmarked state, also described as "the norm," "normal," "expected," or "the default" (Clark & Clark, 1977), while negative states represent marked states. These marked states constitute deviations from the positive norm states. To illustrate, there is one adjective to describe that a person is happy, while there are at least two adjectives to describe the opposite of being happy; that is, a person can be *un*happy or sad. This example also illustrates that it is linguistically possible to change a positive state (e.g., "happy") to a negative state (e.g., "unhappy") by adding a prefix. A negative state (e.g., "sad") typically cannot be changed into a positive state in the same way (e.g., "unsad" does not exist). From these examples, the higher number of possible negative (i.e., marked) relative to positive (i.e., unmarked) states logically follows. As a result, the vocabulary for negative states is more diverse. This was also shown empirically. For example, Leising et al. (2012) showed that people use more unique negative than unique positive terms to describe people.

Lastly, evidence for the negativity diversity also stems from studies using direct assessments of similarity, either with pairwise comparisons (Bruckmüller & Abele, 2013; Unkelbach et al., 2008) or the more recent spatial arrangement method (SpAM; Hout et al., 2013; Koch, Alves, et al., 2016; Koch et al., 2022). These studies robustly demonstrated that positive stimuli, events, or information in general, are more similar and less diverse compared to negative stimuli, events, or information in various research domains (see also Alves et al., 2017b). Such a higher similarity of positive words is for example visible in a more-dimensional space as lower distances between positive than between negative words. Unkelbach et al. (2008) called this the *density hypothesis*. Bruckmüller and Abele (2013) adapted this wording and replicated the density hypothesis for 20 positive and 20 negative

words describing traits.[1] Based on the ample evidence, Koch, Alves, et al. (2016) concluded that "good is more alike than bad."

Differential Similarity as an Explanation for Valence Asymmetries. According to Unkelbach et al. (2020), the higher similarity of positive than of negative information constitutes the "key explanation for valence asymmetries in processing" (p. 151). The authors argue that this incorporates most of the other reviewed explanations, such as diagnosticity or informativeness, and can parsimoniously explain most negativity advantages (for a detailed discussion, see Unkelbach et al., 2019). Crucially, Unkelbach et al. (2019, 2020) proposed that valence asymmetries do not result from the information's valence per se. Instead, negative information receives more weight because of its lower similarity on a structural level. To illustrate this for impression formation with the classic Asch (1946) paradigm, a person may be described with the following trait list: kind, caring, helpful, unintelligent, mindful, disloyal, and understanding. Participants would likely weigh the two negative traits more in their overall impressions than the positive traits, leading to a more negative impression than would be expected if all traits received equal weights. Unkelbach et al. (2020) suggest that this results because the two negative traits (i.e., unintelligent and disloyal) are conceptually very dissimilar, while the positive traits resemble each other more. Besides, this trait list also nicely demonstrates the contribution of the higher frequency of positive information to the stronger weighting of negative information. As negative traits are less frequent, they stand out by means of rarity (see 2.2.1).

3.1.3 Why is Negative Information Less Similar and More Diverse?

In the following, I present explanations for the lower similarity and higher diversity of negative information (i.e., traits, attributes, etc.) based on the *range* and the *Anna Karenina principle*.

[1] Note that the term "density" can be confusing to interpret. The authors referred to *density* as the same as *closeness*. They proposed a "density index" with numerically lower values indicating smaller distances and, therefore, higher similarity and higher conceptual "density" in the sense of closeness. This "low density index = high conceptual density" and "high density index = low conceptual density" can be confusing. Therefore, I will not use the terms "density" or "density index" further in this dissertation. In Chapter 4, I will refer to the terms "distance" and "distance scores" between stimuli, with higher distance indicating lower similarity.

Note that there are also other explanations (e.g., *co-occurences*, see Unkelbach et al., 2019). However, I focus on these two because they build the theoretical ground for the empirical work in Chapter 6, and are also theoretically relevant for the other two empirical chapters (Chapters 4 and 5) in this dissertation.

Range Principle. The *range principle* proposes that positive and negative states, emotions, behaviors, etc., can be arranged on continuous dimensions (Alves et al., 2017b). For any physical or psychological dimension, a "sweet spot" of positive states is framed by the negative extremes of "too little" and "too much" (Alves et al., 2016, 2017b; Grant & Schwartz, 2011; Koch, Imhoff, et al., 2016). This notion of a modest positive range with deficiency at one end and excess at the other already goes back to Aristotle (350 B.C.E/1999). Examples for physical dimensions would be temperature and facial features. For example, there is a limited range of good temperatures that enables humans to live, framed by too-low temperatures that are too cold to allow any living and by too-high temperatures that are too hot to allow living. For faces, noses can be too long or too short, eyes can be too large or too small, and this applies to every facial feature. Evidently, people like those features best (i.e., positive evaluation) that are non-extreme, average and thereby "prototypical" (e.g., Langlois & Roggman, 1990[2]; Rhodes, 2006). This is also referred to as the *beauty-in-averageness effect* (e.g., Halberstadt et al., 2013). People prefer the morph of faces (i.e., by definition, an "average" face) to the individual faces. Such a preference for prototypicality or averageness holds for the majority of categories including animals, cars, wristwatches (Halberstadt, 2006; Halberstadt & Rhodes, 2000, 2003), geometric figures, and dot patterns (Winkielman et al., 2006). Crucially, it also holds for person attributes such as height, talkativeness, amount of eye contact, or the psychological dimension of personality traits (Carter et al., 2018). Even for good traits like being self-confident, by adding the word "too", this trait turns negative (Grant & Schwartz, 2011). People can be too little self-confident (i.e., shy), but also too self-confident (i.e., overconfident), which might make them

[2] Note that Langlois & Roggman's (1990) demonstration had a major confound in that the morphed faces they used had smoother skin than the individual faces, and smooth skin is an attractive feature per se.

appear arrogant (for a visual demonstration, see Figure 3.1). This example also illustrates (a) the markedness principle (Clark & Clark, 1977) and (b) the higher diversity of negativity on the language level (see 3.1.2). (a) The positive state "self-confident" is the present (i.e., unmarked) state, while the absence of being self-confident (i.e., the marked states) can go in two opposite directions: "too little self-confident" and "too self-confident". (b) The same negative state (e.g., being too self-confident) can be expressed by different negative words, for example by adding a prefix (e.g., overconfident, too self-confident). According to Grant and Schwartz (2011), the range principle holds for almost all psychological dimensions.

Of course, the range principle does not apply to all cases without exceptions. For example, one would assume that more money is always better, there is no negative extreme to "happiness" (i.e., the happier the better), or that more poisonous influences on human bodies are always worse than less poisonous influences (see Alves et al., 2017b). Unkelbach et al. (2020) refer to their distinction between reality's substance and its evaluation (see Leising et al., 2015) and argue that the range principle only applies to substance dimensions (e.g., temperature) and not to evaluative dimensions (e.g., happiness). Nobody would question that the absence of happiness is evaluatively "bad," and the presence of happiness is "good." They conclude that "direct organismic evaluations in terms of good and bad do not follow the range principle, as by definition, more of 'good' cannot be worse than less of 'good.'" (pp. 158-159). To conclude, however, there are only a few exceptions to the proposed range principle, and it applies to most physiological and psychological dimensions and to most attributes. In addition, there is no reason to assume that the opposite exists in reality; that is, a negative range that is framed by two positive ends.

Implication of the Range Principle for the Differential Similarity. From a positive state framed by two negative extremes, it must logically follow that positive states are on average more similar and negative states are on average less similar and more diverse than positive states. For faces, an extremely small and an extremely big nose (both likely perceived as unattractive; i.e., negative) are less similar to each other than two noses from which one is slightly smaller than

average (still attractive; i.e., positive) and one is slightly bigger (also still attractive; i.e., positive). Empirically, Potter et al. (2007) showed that attractive (i.e., positive) faces are more similar to each other than unattractive (i.e., negative) faces.

The logical consequence of higher similarity based on the range principle is even more pronounced when combining two dimensions with a positive center and two negative frames each. The result is a limited space in the middle where the two positive centers of both dimensions are combined. For example, people can differ on the two trait dimensions self-confidence and willpower. In Figure 3.1, the one positive combination of a person whose self-confidence and willpower fall within the positive range of each dimension is framed by eight negative combinations of both traits. For the four dark grey squares on the corners of the figure, the resulting negative impression of a person is clear. People typically do not like others who are too low or too high on self-confidence and willpower. To illustrate, I gave these persons labels (see Figure 3.1). For example, a person who is not self-confident and has no willpower might be perceived as a "flag in the wind" (bottom left dark grey square). A person who is overly self-confident but not strong-willed will not pursue what they pretended to do, and might thus appear as an "unsteady macho" (bottom right dark grey square). Likewise, a person low on self-confidence and high on willpower is someone who wants to stick to their plans, no matter what, but stays for themself (i.e., "timid obsessive"; top left dark grey square) and someone too high on both traits might be perceived as an arrogant leader (top right dark grey square). To be sure, these examples serve as a bold illustration of the higher diversity of negative trait combinations.

Incorporating the Anna Karenina Principle. The Anna Karenina principle got its name from Tolstoy's novel *Anna Karenina* (1877). As his first line, Tolstoy wrote that "Happy families are all alike; every unhappy family is unhappy in its own way." The principle states that something can only be positive as a whole if every part of it and their combinations are positive (i.e., conjunction; Diamond, 1997; Moore, 2001). To evaluate something negatively, however, it is enough to evaluate one component negatively (i.e., disjunction). Tolstoy's opening phrase thus describes that a family is only

happy if several aspects are given (e.g., affection, health, financial security etc.). As soon as there is deficiency in one aspect, the family is unhappy. Consequently, unhappy families resemble each other much less than happy families do. Applied to traits, a trait combination is not fully positive anymore as soon as one of both traits reaches one of both negative ends of its range. Thus, incorporating the Anna Karenina principle explains why not only the four dark grey squares in Figure 3.1, but also the four lighter grey squares surrounding the positive square in the middle are classified as "negative".

Figure 3.1

Combination of Two Trait Dimensions That Follow the Range Principle

Note. Illustration of the range and the Anna Karenina principle and their implications for the higher diversity of negative than positive impressions of people in person perception. I use self-confidence and willpower as two traits based on which people could form an impression of a person possessing these traits. The "+" symbol indicates an overall positive impression, the "–" symbol indicates negative impressions.

To keep the example from above, a person whose willpower falls in the positive middle range but who presents themself as too self-confident will still not be evaluated positively by other people (i.e., light grey square on the right in Figure 3.1). Figure 6.1 (Chapter 6) illustrates how the range principle translates to predictions about the revelation value and informativeness of people's positive and negative *attitudes* (i.e., their likes and dislikes).

3.2 Implications of the EvIE Model for Impression Formation and Person Perception

The Evaluative Information Ecology (EvIE) model led to non-trivial predictions in various areas including evaluative learning and evaluative conditioning (Alves et al., 2020; Sperlich & Unkelbach, in press), self-appraisals (Baldwin et al., 2024), perception of groups and intergroup biases (Alves et al., 2018, 2024; Woitzel & Alves, 2024) or halo effects (Gräf & Unkelbach, 2016, 2018). I focus on implications relevant for impression formation and person perception here.

Impression Formation and Person Perception. The higher frequency of positive information implies that the traits that people have in common (i.e., shared traits) are positive, while the traits that differentiate them from each other (i.e., unshared traits) are negative. Alves et al. (2017a) called this the *common good phenomenon*. The higher diversity of people's negative attributes implies that people perceive others they like (i.e., positive impression) as more similar to each other than others they dislike. Alves et al. (2016) showed this positive association between liking and perceived similarity empirically and concluded that one's "friends are all alike". Similarly, earlier research already showed that people judge the personalities of liked persons more similar than the personality of disliked persons (Leising et al., 2010, 2013).

Recently, Koch et al. (2024) used the EvIE model, which they refer to as a *cognitive-ecological model of social perception*, to explain why later-encountered individuals are described more negatively compared to earlier encountered individuals. Their explanation is based on the higher diversity of negative than of positive person attributes and past research on the *differentiation principle* (Sherman et al., 2009; Tversky, 1977; for an overview, see Hodges, 2005). This principle states that people form impressions about persons they newly meet based on these persons' distinct

(i.e., unique) attributes because these are more informative than common ones to distinguish the new person from already known ones (see also Fiske, 1980; 2.2.1). As these unique attributes are more likely negative than positive due to negative information's greater diversity, the description disadvantage for later-encountered individuals follows.

Halo Effects. Due to their higher similarity, positive traits are also more likely to co-activate each other. Negative traits, on the contrary, are not similar enough to co-activate each other to the same extent (Alves et al., 2015; Fiedler, 1996). Consequently, people more strongly generalize from positive to other positive information and show stronger inferences, so-called *halo effects* (Thorndike, 1920), based on positive than on negative person information (i.e., a person's traits or behaviors; Gräf & Unkelbach, 2016, 2018). This can also be illustrated with a trait example. Intuitively, knowing that someone is stupid does not lead to the assumption that this person is also shy. It is just as likely that a stupid person is arrogant. On the contrary, one would probably assume that a person who is self-confident and intelligent is also kind or helpful. This link results from a stronger semantic association because positive traits are on average more similar than negative traits. We also provide empirical evidence for this notion in Chapter 4.

3.3 Attribute Ambiguity

Evidence for a higher diversity of negative information also stems from the above-mentioned research on agent evaluation. Building on the Anna Karenina principle, Gershoff et al. (2007) proposed that the reasons to dislike something are more diverse than the reasons to like something. For example, they showed that people indicate similar reasons to like a certain ice cream but dissimilar reasons to dislike an ice cream. Based on Tolstoy, Gershoff et al. (2007) summarized this as "few ways to love, but many ways to hate" (p. 1). Crucially, they argued that this higher ambiguity of disliked attitude objects can explain their previously shown positivity effect in agent evaluation (Gershoff et al., 2006; see also 2.2.2). People see agreement on loved compared to hated alternatives as more informative because of the greater attribute ambiguity of hated alternatives. That is, there is higher uncertainty regarding which attributes underlie hated alternatives, rendering them less

informative and, therefore, less diagnostic for agent evaluation. We argue similarly in our work on anticipated knowledge based on people's likes and dislikes (see Chapter 6).

3.4 Summary and Predictions

Most research showed that negative information receives more weight and impact than positive information in impression formation and person perception (e.g., Kanouse & Hanson, 1972; Peeters & Czapinski, 1990; Skowronski & Carlston, 1989). Since the start of impression formation studies, research demonstrated the stronger weighting of negative than of positive traits for overall impressions (Anderson, 1965; Asch, 1946; Hodges, 1974; see 1.1.1). However, impressions about other persons do not only depend on their *traits* but can also be influenced by these persons' positive and negative *attitudes*. For example, people prefer others who express positive attitudes (i.e., indicate what they like) over others who express negative attitudes (i.e., indicate what they dislike; Amabile, 1983; Amabile & Glazebrook, 1982; Folkes & Sears, 1977). Further, people have more positive impressions of others who share their attitudes (e.g., Bond et al., 1968; Byrne et al., 1971; Tan & Singh, 1995). Robust literature showed that these positive impressions can lead to initial liking, summarized under the well-known phenomenon of the *similarity effect* (e.g., Byrne, 1971; see 1.2.2). In line with the higher impact of negative than positive traits and the prominent notion of higher impact of negativity in general (see 2.1.2), researchers also suggested a higher impact of negative shared attitudes for the similarity effect (Bosson et al., 2006; Weaver & Bosson, 2011). More specifically, they argued that sharing negative attitudes leads to more closeness than sharing positive attitudes. Taken together, the available evidence suggests that negative traits and attitudes are weighed more. One central explanation is that negative information receives higher weight and has more impact because it is more informative and diagnostic (e.g., Fiske, 1980; Skowronski & Carlston, 1987).

In this dissertation, I approach the question of the differential impact of positive and negative traits and attitudes from a cognitive-ecological perspective based on the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019). The model proposes that positive and negative

information differ in their structural properties in the ecology. Positive information, and therefore also people's positive traits and their positive attitudes, are more frequent, more similar, and less diverse than people's negative traits and attitudes (e.g., Unkelbach et al., 2019, 2020). Based on the diversity principle of the EvIE model, I derive novel predictions about the differential impact of positive and negative traits and attitudes. These relate strongly to the informativeness and diagnosticity explanations of valence asymmetries.

In the upcoming Chapter 4, I focus on positive and negative traits in dating. If negative traits are less frequent, more diverse, and less similar to each other compared to positive traits (as suggested by the EvIE model) in the context of dating, negative traits should be more informative and diagnostic for the decision of whom people want to date. In a broader sense, whether positive or negative traits are more informative and diagnostic in dating has implications for conversations about dating partners, for self-presentation in online dating and for how to approach online dating in general (for a detailed discussion of implications, see Chapter 7).

In the published paper presented in Chapter 5, we examined whether shared positive or negative attitudes bond stronger and whether this results from their differential revelation value. Previous research argued that people feel closer to each other when they share negative rather than positive attitudes (Bosson et al., 2006; Weaver & Bosson, 2011). However, the EvIE model makes predictions for the similarity effect that are opposite to this existing evidence. From the higher diversity of negative information, it follows that there are usually various reasons to dislike something and only a few reasons to like something (Alves et al., 2017b; see also Gershoff et al., 2007, for a similar argument in agent evaluation). Consequently, people's positive attitudes should be more informative and revealing about the person, and sharing those should bond stronger than sharing the less revealing and less informative negative attitudes.

Chapter 6 presents a manuscript that addressed another implication of negative attitudes' higher diversity regarding their underlying reasons: If there are more reasons to dislike than to like something, it should also follow that people believe they know others better when knowing what

these others like as opposed to what they dislike. Thus, likes should be more informative than dislikes. We examined differential anticipated knowledge about people based on their positive versus negative attitudes as another example of a valence asymmetry. Similar to the assumed higher bonding power of positive than negative shared attitudes, the higher knowledge based on people's positive attitudes would also rather indicate a higher impact of positive than of negative information in person perception. Thus, on a broader level, this would contribute to the currently sparse evidence for positivity advantages in interpersonal contexts.

Taken together, I aim to show with this dissertation how incorporating the structural properties of people's traits and attitudes (i.e., their differential frequency and similarity) leads to novel predictions about valence asymmetries in impression formation and person perception.

Chapter 4: Asymmetric Effects of Positive and Negative Traits in Dating

Since the early research on impression formation and person perception (e.g., Anderson, 1965; Asch, 1946), researchers asked participants to build their impressions (e.g., indicate the likability) of target persons based on this person's traits, also known as the person perception task (e.g., Shanteau & Nagy, 1984). This makes sense as people's traits are a fundamental component of an individual's personality (e.g., Allport, 1937, 1954; Cattell, 1965; Eysenck, 1953). The focus on the distinction between the valence of people's traits is as old as the first studies themselves. In this chapter, we introduce a new ecological perspective on the study of traits' valence in the context of dating. Based on the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019), we assumed that the positive and negative traits people look for (i.e., positive) and avoid (i.e., negative) in potential partners can have a content and a structural level. On the content level, people for example look for humorous partners and avoid egoistic ones (for an overview of findings on the content level, see 1.2.3). The focus of previous research on partner preferences has been on the content level as well as on positive rather than negative traits. On the structural level, we introduce that positive and negative traits also differ in their frequency and diversity (see 3.1). In this chapter, we show the value of expanding the perspective onto both positive and negative traits and of considering how positive and negative traits differ on an ecological (i.e., structural) level.

This chapter is based on the following article:

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Please note that certain modifications were made to the headings, citation style, and formatting to align with the layout of this dissertation. No changes were made to the content of the article.

In the End, We All Look for the Same – On The Frequency and Similarity of Traits in Dating

Abstract

Research on which traits lead to favorable attitudes towards trait holders investigated the content of these traits (e.g., kindness). We moved from this content level to the structural level of traits in dating. Prior research identified frequency and similarity as central structural properties of information; positive information is more frequent, and negative information is less similar (i.e., more diverse). In four preregistered studies, we tested whether these properties hold for traits in the interpersonal context of dating and investigated their impact in hypothetical dating decisions. In Studies 1 (n = 298) and 2 (n = 175), participants listed more positive than negative traits they considered relevant in dating partners, but the provided traits included more unique and less similar negative than positive traits. Thus, people agreed on what to look for, while there was less agreement on what to avoid. Study 3 (n = 200) showed that people found the traits most similar to all others most important for dating, and this importance predicted whether people swiped a potential partner with this trait left or right. We also report the top ten dealbreakers and dealmakers on the content and structural level. Finally, Study 4 (n = 401) showed that similarity between negative traits predicted how likely people wanted to date a person with a given trait above and beyond its importance. We did not find this relation robustly for positive traits. The present data highlight the importance of the structural level beyond the content level and the importance of considering undesirable partner characteristics.

Keywords: information ecology, impression formation, interpersonal perception, dealbreaker, dealmaker

Statement of Limitations

Internal validity. All our studies use straightforward and highly controlled setups. While all reported studies are correlational, the causal direction between constructs follows theoretically and empirically. We believe internal validity is high.

Construct validity. The frequency of listed traits is directly measurable. We use established measures to assess the similarity of traits. We use two measures of the main dependent variable of swiping behavior that are straightforward to interpret and based on real dating platforms. We believe construct validity is high.

Statistical validity. We preregistered hypotheses and sample sizes for all experiments. We only used standard analytic techniques that are easily reproducible. We believe statistical validity is high.

External Validity. We use hypothetical online dating scenarios to test whether traits' structural properties predict swiping behavior. It is an open empirical question whether these results replicate in more naturalistic settings. Theoretically, we see no reason why they should not. Nevertheless, external validity is low.

Statement of Author Contributions

The authors were equally involved in conceptualizing and designing the experiments. The first author was responsible for the Prolific data collection, provided the data analyses, and wrote the first draft of the manuscript. The final version of the paper is joint work of both authors.

4.1 Introduction

In online dating, people form attitudes about potential partners based on minimal information. Besides based on profile pictures (Fiore et al., 2008), people decide whom to date based on the traits people use to describe themselves. So far, research on which traits lead to favorable evaluations of potential partners primarily focused on what we call the *content level* and identified what qualities people search for (e.g., agreeableness, kindness, warmth, expressivity, openness, and intelligence; see Bryan et al., 2011; Li et al., 2002; Li & Kenrick, 2006; Sprecher & Regan, 2002). More recent research classified seven dealmakers: warmth, attractiveness, intelligence, stability, passion, dominance, and high social status (Csajbók & Berkics, 2017).

We aim to move from this *content level* to predict partner preferences on a *structural level*, building on the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019). We assume that most of the relevant information for partner choice is evaluative. The EvIE model proposes two structural properties of evaluative information in a given ecology: frequency and diversity. One may predict the impact of a given piece of information based on how frequent and how distinct it is. We will explain these structural properties in more detail below. Given that dating online has developed to be the most popular way couples connect nowadays (Rosenfeld et al., 2019), we built our research around online dating scenarios.

We first test whether the model's structural properties hold for traits in dating (Studies 1-3), and then whether we can predict people's decisions for or against dating people with certain traits (Studies 4a-4b) from traits' structural properties. Thereby, we aim to advance the understanding of what factors contribute to favorable or unfavorable attitudes towards potential partners. The EvIE model predicts differential frequency and similarity for positive and negative information (Alves et al., 2017b), which highlights how both dealmakers (i.e., people's positive qualities) and dealbreakers (i.e., people's negative qualities) contribute to partner preferences. We apply the model to personality traits, leaving physical attributes aside (see General Discussion).

4.1.1 The Evaluative Information Ecology (EvIE) Model

The EvIE model proposes two structural properties of evaluative information. Positive information is more frequent (positivity frequency), and negative information is less similar (negativity diversity). Both principles have substantial empirical and theoretical support (see Unkelbach et al., 2019, 2020, for reviews).

For example, positivity frequency is visible in the higher number of positive words in language compared to negative words (e.g., Augustine et al., 2011; Boucher & Osgood, 1969; Dodds et al., 2015; Warriner & Kuperman, 2015) and people are more often in a positive than in a negative mood (e.g., Brans et al., 2013; Diener & Diener, 1996; Thomas & Diener, 1990).

Negativity diversity, for example, is visible in the more similar and less diverse vocabulary for positive than for negative information (Clark & Clark, 1977; Leising et al., 2012). Similarly, there are more negative than positive emotions in classic categorical theories of emotions (Ortony & Turner, 1990). Studies using direct similarity assessments robustly demonstrate that positive stimuli, events, or information in general are more similar and less diverse compared to negative stimuli, events, or information (Alves et al., 2017b; Koch, Alves, et al., 2016; Unkelbach et al., 2008).

These two structural principles lead to non-trivial predictions in several areas, such as halo effects (e.g., Gräf & Unkelbach, 2016, 2018), evaluative learning (e.g., Alves et al., 2020), person perception (e.g., Koch et al., 2024), and perception of groups (e.g., Alves et al., 2018, 2024). Here, we test predictions derived from this structural level for trait-based evaluations of hypothetical dating partners, above and beyond the content level.

4.1.2 Applying the EvIE Model to Traits in Dating

Moving to the structural level by applying the EvIE model to traits in dating may advance research on partner preferences because the model (a) considers both positive and negative information as important parts of people's dating life and (b) it allows predictions for partner preferences that do not follow from a content level.

Regarding (a), research so far has focused mainly on positive "dealmaker" qualities (e.g., Buss, 1989; Kenrick et al., 1993; Li et al., 2002; Li & Kenrick, 2006; Thomas et al., 2020). We argue and show that including negative information improves predictions about dating behavior and partner choice. This argument dovetails with a recent, yet so far limited movement in partner research that also considers what people avoid in potential partners, the so-called "dealbreakers" or "red flags" (Csajbók & Berkics, 2017, 2022; Csajbók et al., 2023; Joel & Charlot, 2022; Jonason et al., 2015, 2020).

Parallel to research on dealmakers, those studies focused on negative qualities on the content level (e.g., Apostolou & Eleftheriou, 2022; Csajbók et al., 2023). While studies vary in the exact dealbreaker factors, there is considerable agreement that future research should incorporate both desirable and undesirable partner features (Jonason et al., 2015, 2020; Csajbók & Berkics, 2022, Csajbók et al., 2023).

Regarding (b), we first test whether the frequency and the diversity principles on the structural level hold for traits in dating. More frequent traits should be easier to access and more readily available in people's minds. Consequently, we test whether people spontaneously list more positive than negative traits (frequency principle) that they consider relevant when dating online. The EvIE model's diversity principle predicts that positive traits are more similar to each other than negative traits, and that there is a higher diversity of negative traits. This might be counterintuitive as it seems clear that nobody wants a clingy, abusive, and dull partner. However, we argue that this alleged agreement on negative partner qualities is deceptive and that people agree less on negative than positive traits. Clingy might be a dealbreaker for some people, while others do not mind this trait. Conversely, everyone will agree that a partner should be kind. More applied, we test whether negative traits, due to their higher diversity, may predict dating decisions better than positive traits.

Note that we had no a priori hypotheses for gender differences on the structural level. As gender differences are of great interest in partner preferences, we report non-preregistered gender analyses in the Supplements on OSF (link below).

4.1.3 Differential Importance of Positive and Negative Traits

In relationship research, some studies support that dealbreakers weigh more than dealmakers (Jonason et al., 2015, 2020; Zuckerman & Sinicropi, 2011), while others do not (Csajbók & Berkics, 2022). We tackle these ambiguous findings and examine whether positive and negative traits differ in their importance in an online dating context. We see trait importance as a variable on the content level. By including trait importance, we aim to show how content-related (i.e., importance) and structural (i.e., diversity) properties of traits are related and to test whether trait importance predicts hypothetical dating decisions.

4.2 Overview of the Present Research

Studies 1 and 2 tested the EvIE model's structural properties for traits in dating. In Studies 1a to 1c, participants listed positive and negative traits they consider relevant in dating to test whether the traits follow the positivity frequency. These traits (n = 348) built our trait pool for the subsequent studies.

Study 2 tested the negativity diversity principle for the sampled traits. Participants rated the traits regarding Valence, Arousal, and Dominance (Osgood et al.'s dimensions of meaning, 1957), locating each trait in a three-dimensional space. We then computed the Euclidean distances for each trait, measuring how similar a given trait was to all others of the same valence (see Unkelbach et al., 2008).

Study 3 examined whether trait importance and trait distance (indicating trait similarity) correlate as the EvIE model would predict, and whether positive and negative traits differ in their importance.

Studies 4a and 4b tested whether trait distance on the *structural level* (i.e., indicating similarity to other traits of the same valence) predicts hypothetical dating decisions above and beyond the *content level* of trait importance.

4.3 Transparency and Openness

We preregistered all studies. We report all data exclusions, manipulations, and measures in all studies. We had no concrete effect size for an a priori power calculation. We preregistered an ad hoc number of 100 participants and kept this number across studies. The reported studies include all studies we conducted in this line of research so far. The preregistrations, supplementary materials, data, and analysis code can be found on OSF (https://osf.io/yrxe3/?view_only=ab44954ab8d043ad9b48addabc18d97e). We analyzed the data using R, version 4.3.3 (R Core Team, 2024).

4.4 Study 1a - 1c: Trait Frequency

Studies 1a to 1c tested the frequency principle of the EVIE model (e.g., Unkelbach et al., 2019) for traits in dating. Participants should list positive and negative traits they consider relevant in dating partners. We predicted that people list more positive (i.e., traits to look for) than negative traits (i.e., traits to avoid).

The three studies only varied in procedural aspects. Study 1c changed the sample, the language, and the setting.

4.4.1 Method

Participants and Design. We set the sample to 100 participants for all three studies. For Study 1a (49 female, 51 male, 0 other, 0 prefer not to say; aged 18 to 66, M_{age} = 31.55, SD_{age} = 11.21) and 1b (48 female, 50 male, 2 other, 0 prefer not to say; aged 18 to 59, M_{age} = 31.76, SD_{age} = 10.01), we collected data from 100 English-speaking participants (50% UK-based, 50% US-based each) on the Prolific Academic online platform and compensated participants with £0.63 (Study 1a) and £0.75 (Study 1b). We conducted Study 1c laboratory-based at a university campus in Germany. We collected data from 101 German-speaking participants. We excluded three participants who were under 18 years old. This left 98 participants in the final sample (61 female, 35 male, 2 other, 0 prefer not to say; aged 18 to 64, M_{age} = 23.26, SD_{age} = 6.58). Participants received a chocolate bar as compensation.

Procedure. For Studies 1a and 1b, the study description on Prolific stated that people should only participate if they have used dating platforms or apps before. The Qualtrics software survey again asked participants whether they had experience in online dating. Only those who chose "yes" could start the actual survey. Qualtrics then presented an informed consent form. Participants had to consent to participate, allowing us to use their data for research purposes.

For Study 1c, participants did not have to confirm to have dated online before. Instead, after they agreed to participate based on the informed consent, the study asked whether they had dated online before.

Then, in all three studies, the survey asked: "What traits do you look for in other people (positive traits), and what traits do you avoid (negative traits) when dating online?" Instructions told participants that they could list as many positive and negative traits as they could think of and to please separate each trait with a comma. On the same page, participants saw two text boxes: one to enter positive traits and one to enter negative traits. The order of textboxes varied for all three studies. Study 1a always showed the textbox for positive traits first and the box for negative traits second. Study 1b switched this order and always showed the textbox for negative traits first and the box for positive traits second. In Study 1c, we randomized which of the two boxes participants saw first and saved the presentation order.

At the end, the study asked for demographics and thanked for participating. On average, sessions lasted around two (Studies 1a and 1b) to three (Study 1c) minutes.

4.4.2 Results

Data Conditioning. First, we checked whether the free entry trait responses were in the proper format; that is, whether participants separated each entry with commas. The first author and a research assistant independently processed the responses from all 100 (98 for Study 1c) participants and checked them for correct comma use.

Second, we checked whether the aspects participants entered matched "traits" in dating. We only included entries that described personality and character traits such as being "honest" or

"rude". We excluded entries that, for example, addressed preferences concerning physical attractiveness, kinds of self-presentation on dating profiles, or entries that addressed whether people share their own attitudes, such as "same music taste as me". The first author and a research assistant independently screened the data and created two new variables that exclusively featured character traits. These two new variables were the basis for the following analysis.

Frequency Analysis. We calculated two frequencies: one for the number of positive and one for the number of negative traits that each participant wrote in both boxes. We used paired sample *t*-tests to compare the frequencies. As predicted, participants listed significantly more positive than negative traits across all three studies. Table 4.1 shows means, standard deviations, and test statistics. Figure 4.1 illustrates the effect and shows the data distributions. To account for potential unintentional selection biases, we also analyzed whether all entries (i.e., independent of content and whether these were traits or not; see above) differed in positive and negative frequencies. These analyses replicated the main pattern and we present them in the Supplements (Supplement 1).

Table 4.1

Frequency of Listed Positive and Negative Traits in Studies 1a, 1b, & 1c

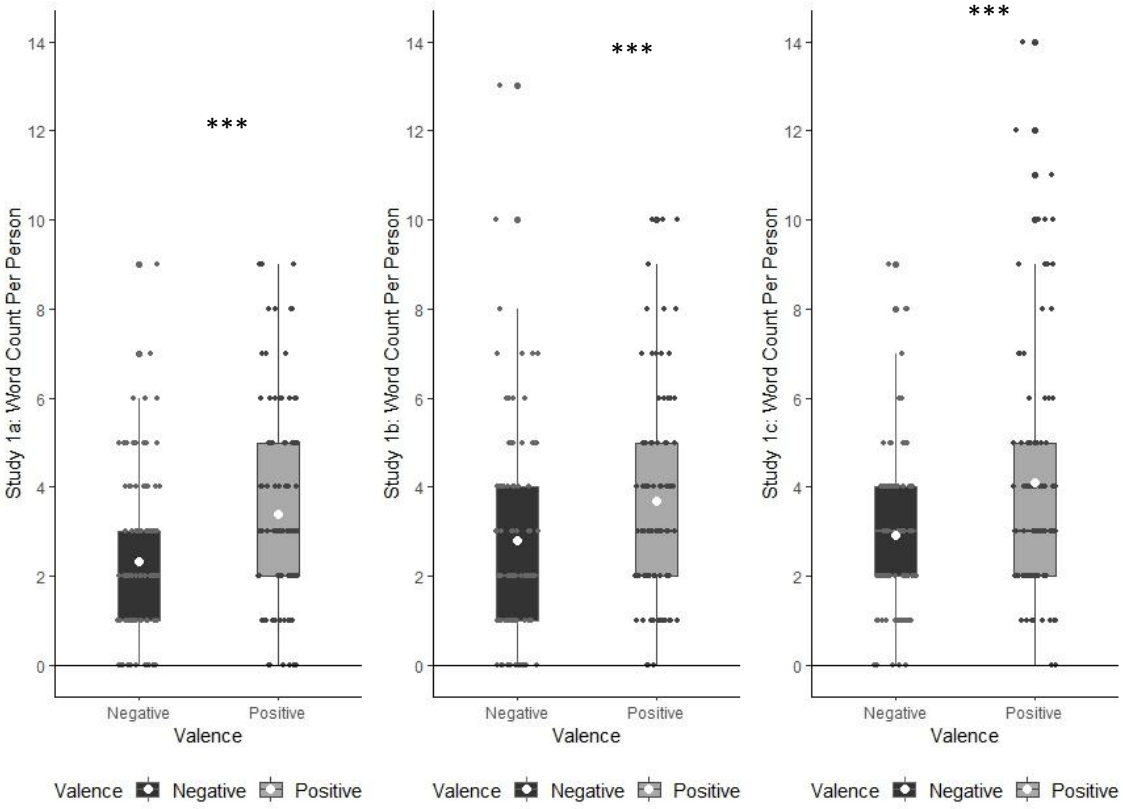
	Positive Traits		**Negative Traits**		**Paired Sample *t*-tests**			
	M	***SD***	***M***	***SD***	***t*(df)**	**Significance (*p*)**	**95% CI**	d_z
Study 1a	3.40	2.27	2.34	1.83	$t(99) = 5.69$	< .001	[0.69, 1.43]	0.57
Study 1b	3.70	2.25	2.80	2.38	$t(99) = 4.95$	< .001	[0.54, 1.26]	0.49
Study 1c	4.10	2.94	2.93	1.95	$t(97) = 6.00$	< .001	[0.79, 1.56]	0.60

For Study 1c, we preregistered to check whether experience with online dating influenced the frequency effect. Sixty-one participants indicated experience with online dating, and thirty-two indicated no experience. We ran a linear mixed model that predicted the word count from the fixed

effects valence (contrast coded with 1 = positive, -1 = negative), online dating experience (contrast coded with 1 = experience, -1 = no experience), and their interaction. We included participants as a random factor with random intercepts to account for the nesting of two observations (positive, negative) within each participant (Judd et al., 2017)**.** As expected, the model showed a significant fixed effect of valence on the word count, $b = 0.59$, $SE = 0.10$, $t(96) = 5.85$, $p < .001$, but no effect of experience, $b = -0.11$, $SE = 0.24$, $t(96) = -0.45$, $p = .657$, and no interaction, $b = -0.03$, $SE = 0.10$, $t(96) = -0.28$, $p = .783$.

Figure 4.1

Word Count as a Function of Valence in Studies 1a, 1b, & 1c



Note. Box plots with scatter overlay of positive and negative trait frequencies (word count) per person in Study 1a (left), Study 1b (middle), and Study 1c (right). The box plots constitute the first quartile, third quartile, and the median. The white circle within a box plot indicates the mean.

*** $p < .001$.

Exploratorily, we also checked whether the order of textboxes (positive first vs. negative first) had an effect. A linear mixed model that predicted the word count from the fixed effects valence (1 = positive, -1 = negative), order (1 = positive first, -1 = negative first), their interaction, and random intercepts for participants, showed no significant effect of order, $b = 0.19$, $SE = 0.23$, $t(96) = 0.81$, $p = .419$.

4.4.3 Discussion

Three studies showed that people think of more positive than negative traits they consider relevant in dating partners. This aligns with the positivity frequency principle (Unkelbach et al., 2019). There was no difference between people with or without online dating experience. Further, the effect did not differ depending on whether people first listed positive or negative traits, suggesting that positivity frequency holds even when culture, language, setting, and procedure vary.

Across participants, the traits contained more unique negative ($n = 188$) than unique positive ($n = 156$) traits. This aligns with the EvIE model's negativity diversity principle. While each participant listed more positive than negative traits, participants agreed more on what these positive traits were, and came up with more unique negative traits. Study 2 directly tested whether the smaller number of positive traits is also more similar to each other than the higher number of negative traits (i.e., controlling for diversity on the trait level).

4.5 Study 2: Trait Similarity

The EvIE model's negativity diversity principle predicts that positive traits should be more similar (i.e., less diverse) to each other than negative traits (Unkelbach et al., 2019). Study 2 tested whether the sampled traits follow this asymmetry. In line with earlier studies (e.g., Alves et al., 2017b; Koch, Alves, et al., 2016; Unkelbach et al., 2008), we predicted that positive traits are more similar than negative traits when mapping them in a three-dimensional space of Valence, Arousal, and Dominance (Osgood et al., 1957; previously used by Warriner et al., 2013).

4.5.1 Method

Materials. We used the 348 traits (156 positive, 188 negative, 4 both) from Studies 1a and 1b (see materials on OSF for the complete list). We split the 348 traits into six lists with 50 traits each and one with 48 traits. Each list consisted of about 23 traits that participants in the sampling studies listed as positive traits and about 27 traits that participants in the earlier studies listed as negative traits. This distribution mirrors the proportion of more negative than positive traits in the complete trait list. Four traits were listed as both positive and negative traits in the earlier studies, which we did not consider "positive" or "negative"; hence, the lists were not perfectly aligned. Given these constraints, we randomly distributed the traits from the complete list to the seven lists.

Participants and Design. We aimed to have each trait evaluated by 25 participants. Thus, we collected data from 175 English-speaking participants (50% UK-based, 50% US-based; 85 female, 87 male, 2 other, 1 prefer not to say; aged 19 to 77, M_{age} = 36.53, SD_{age} = 11.82) on Prolific. They received £2.25 as compensation. Participants were randomly assigned to one of the seven trait lists.

Procedure. After the informed consent, participants learned that the task would be to rate different traits on three scales. These would be traits that people look for or avoid when dating online. We included this information as traits' implications might differ as a function of context. After this short instruction, the study explained the three scales in detail.

Before participants saw the actual traits, the study presented 12 calibrator words, that is, four words per dimension. We adapted this procedure from Warriner et al. (2013). We selected 12 traits from the Warriner data set that spanned the full range of the three scales participants would encounter. We used the following calibrator words (in increasing order of ratings): *Valence:* insulting (1.89), ordinary (5.05), prudent (5.29), lovable (8.26); *Arousal:* calm (1.67), dreamy (4.92), malicious (4.95), naughty (6.95); *Dominance:* incapable (2.59), cynical (4.95), naïve (5), thriving (7.42). The mean ratings in parentheses are taken from Warriner et al. (2013; correlations between our calibrator values and the values from the Warriner dataset: Valence: $r(10) = .94$, $p < .001$, Arousal: $r(10) = .90$, $p < .001$, Dominance: $r(10) = .87$, $p < .001$). The goal was to calibrate participants

concerning the lower and upper end of each scale before rating our traits of interest (see Zorn & Unkelbach, 2023). Participants rated these 12 traits on the same scales (see below) as the actual traits of interest.

The study presented each trait on a separate page. The study asked below the trait in bold font, "How would you rate this trait on the following dimensions?" We used the same scales as Warriner et al. (2013) that were based on Osgood's dimensions of meaning (1957): Valence, Arousal, and Dominance. Valence refers to the pleasantness of a stimulus, Arousal refers to the intensity of emotion provoked by a stimulus, and Dominance refers to the degree of control exerted by a stimulus (Osgood et al., 1957). Participants rated all traits on three 9-point Likert scales: Valence (1 = unhappy to 9 = happy), Arousal (1 = calm to 9 = excited), and Dominance (1 = controlled to 9 = in control). The scale's midpoint (5) was labeled as "neutral".

At the end, participants reported their demographics. Study sessions lasted about 16 minutes on average.

4.5.2 Results

Data Conditioning and Validity Check. Our predictions concerned the variance on the trait level (see Unkelbach et al., 2008). Thus, we computed each trait's mean and standard deviation of Valence, Arousal, and Dominance across participants. As a validity check, for the traits that also appeared in the Warriner et al. (2013) data set (total: 217 traits), we compared participants' ratings on all three dimensions with the existing Warriner et al. ratings to check whether they converge. The correlations on all three dimensions were high (Valence: $r(215) = .94$, $p < .001$, Arousal: $r(215) = .64$, $p < .001$, Dominance: $r(215) = .76$, $p < .001$). Thus, participants in our study answered similarly to Warriner et al.'s participants.

Similarity Analysis. We excluded the 12 calibrator words and the four traits that some participants in the sampling studies listed as positive and others as negative (see above). These exclusions left 344 traits in the trait pool. The mean ratings located each trait in a three-dimensional space of Valence, Arousal, and Dominance. To assess the traits' similarity within their valence, we

computed Euclidean distances within this space (see Unkelbach et al., 2008); that is, the average distance of each trait to all other traits of the same valence. Note that lower distance values imply higher similarity. Based on these distances for each trait, we then calculated the mean distance of positive and negative traits to all other traits of the same valence. We term these *distance scores* from now on and treat them as an indicator of traits' similarity to all other traits of the same valence.

As predicted, the distance score for positive traits was lower (M_{pos} = 1.95, SD_{pos} = 0.52) than for negative traits (M_{neg} = 2.31, SD_{neg} = 0.62), indicating the higher similarity of positive compared to negative traits, $t(342) = -5.79$, $p < .001$, 95% CI = [-0.47, -0.23]. Figure 4.2 shows the distribution of all traits in the three-dimensional space.

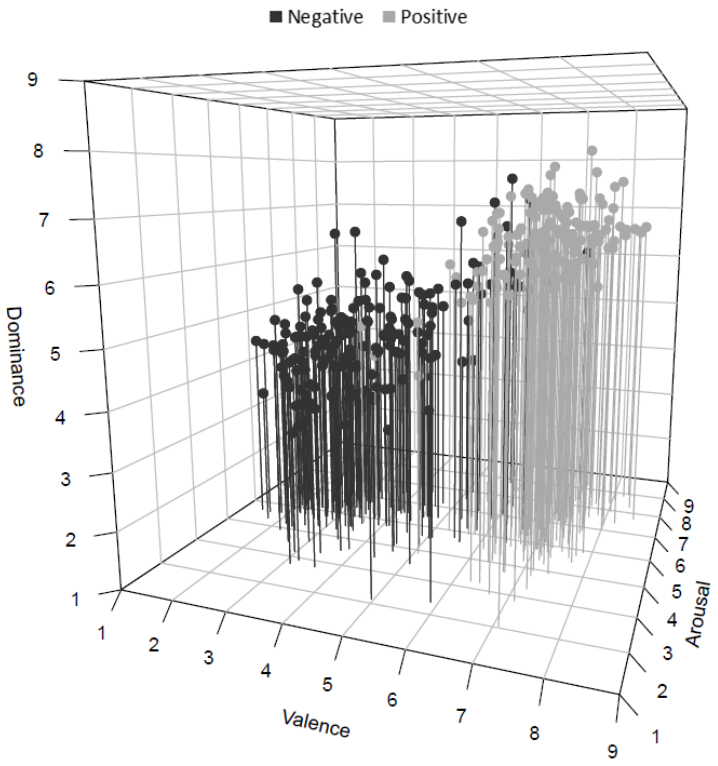
Figure 4.2 also shows that participants in Study 2 perceived some traits differently on the Valence dimension than participants in Studies 1a and 1b. That is, some overlap exists between the light grey and the dark grey data points. First, the finding that more dark grey dots (i.e., initially sampled as negative traits) appear in the bubble of light grey dots (indicating a relatively positive valence) than light grey dots (i.e., initially sampled as positive traits) appear in the bubble of dark grey dots (indicating a relatively negative valence) matches the idea of a higher diversity of negative traits. Put differently, this finding mirrors that people show less agreement on which traits to consider negative compared to which traits to consider positive. As past research already suggested, there is more divergence in opinions on what is negative (Unkelbach et al., 2008). Second, the Valence scale, although named "Valence", did not assess traits on a scale from "negative" to "positive", but from "unhappy" to "happy" (as suggested by Warriner et al., 2013). Therefore, the trait valence indicated in Study 1a or 1b does not have to map perfectly onto this dimension.

To show that the higher diversity of negative traits is no outlier effect (for a detailed discussion on the impact of outliers on the distance score, see Unkelbach et al., 2008, p. 42), we repeated the analysis without the most extreme positive and negative traits (i.e., outliers). As this analysis was not preregistered, we did not settle on one way to compute the outlier analysis in advance. Therefore, we computed the analysis in two different ways.

First, we followed the procedure by Unkelbach et al. (2008) and excluded the four positive and the four negative traits (valence stems from the initially indicated valence in Studies 1a and 1b) that were most extreme regarding their mean distance scores. We then again computed the average distance of each trait to all other traits of the same valence. Excluding those eight traits even increased the effect of a higher mean distance score of negative (M_{neg} = 2.21, SD_{neg} = 0.56) compared to positive traits (M_{pos} = 1.85, SD_{pos} = 0.42), $t(331) = -6.78$, $p < .001$, 95% CI = [-0.47, -0.26].

Figure 4.2

Differential Similarity of Positive and Negative Traits in Study 2



Note. Location of positive and negative traits in the three-dimensional space of Valence, Arousal, and Dominance in Study 2. Positive traits were more closely clustered, while negative traits were more widely spread.

Second, we computed outliers based on the interquartile range of the traits' distance scores within each valence. This approach yielded six positive and eleven negative outliers. Again, excluding

those 17 outliers and computing new average distances of each trait to all other traits of the same valence still showed the expected higher diversity (i.e., lower similarity as indicated by a higher mean distance) of negative (M_{neg} = 2.08, SD_{neg} = 0.49) compared to positive traits (M_{pos} = 1.81, SD_{pos} = 0.39), $t(324) = -5.55$, $p < .001$, 95% CI = [-0.36, -0.17]. Taken together, the higher similarity of positive traits was robust and did not seem to result from outliers.

4.5.3 Discussion

Study 2 showed the negativity diversity principle for ecologically sampled traits in dating. In line with earlier research (e.g., Unkelbach et al., 2008), positive traits had a lower distance to each other than negative traits, indicating that positive traits were more similar to each other.

Results of Studies 1 and 2 suggest that people agree more on what they look for in dating and less on what to avoid. The complete trait pool had fewer unique positive than unique negative traits, and what to avoid was more diverse (i.e., less similar) than what to look for.

Next, we examined whether the structural property of negativity diversity has relevance for dating decisions. On the content level, traits can differ in how *important* people perceive them. In Study 3, we introduced trait importance and examined its relation to a trait's distance (measuring similarity).

4.6 Study 3: Trait Similarity and Trait Importance

Study 3 tested whether people find avoiding negative traits more important than looking for positive ones and whether a trait's similarity to other traits correlates with its importance. Low distance scores indicate that traits are close to all others (high similarity), high distance scores indicate that traits are further away from all others (low similarity).

Based on the EvIE model, for positive traits, we predicted that the closer (more similar) they are to all other traits, the more important people perceive them to be for dating (H2a). Research on impression formation demonstrated that some traits are more central than others (e.g., being warm), and those have more impact on overall impressions (Asch, 1946). In both symbolic and sub-

symbolic memory models, information that is more similar to others more strongly activates other information (Unkelbach et al., 2008).

As the EvIE model predicts lower similarity of negative traits, we did not expect the same pattern for negative traits. Instead, we predicted that negative traits that are further away from all other traits (less similar) will "pop out" and be more salient, and therefore people will perceive those as more important (H2b). To preview the outcome, it turned out that more central traits were more important for both positive and negative traits (see General Discussion).

On the content level, we identified which traits participants considered most important (i.e., dealbreakers and dealmakers).

4.6.1 Method

Materials. We used the same trait pool as in Study 2 and again excluded the four ambivalent traits without clear valence. This exclusion left 344 traits in the pool (156 positive, 188 negative). We created four lists with 86 traits each. Each list consisted of 39 positive and 47 negative traits. This distribution again mirrored the proportion of more negative than positive listed traits in the sampling studies.

Participants and Design. As we wanted each trait to be evaluated by 50 participants, we collected data from 200 English-speaking participants on Prolific (50% UK-based, 50% US-based; 95 female, 101 male, 4 other, 0 prefer not to say; aged 19 to 80, M_{age} = 38.31, SD_{age} = 13.86). They received £2.25 as compensation. We randomly assigned participants to one of the four trait lists.

Procedure. Participants first saw the informed consent. If they agreed to participate, they learned that they would see different traits people look for or avoid when dating. Their task would be to indicate for each trait whether they thought this was a trait to look for or to avoid when dating. We thereby first checked whether participants had the same perception of a trait's valence as the participants who classified the traits either as a positive or as a negative trait in the original sampling studies (Studies 1a & 1b). After indicating a trait's valence, they should rate how important they find a given trait in dating.

To ensure that participants understood our concept of importance, instructions provided more details: “To illustrate, you might think of importance as: How much weight would a trait receive when considering whether you would want to meet a person who has this trait? How likely is a trait especially good (traits people look for when dating) or especially bad (traits people avoid when dating) when a person has this trait?”

We then showed the 7-point Likert scale (1 = not at all important to 7 = very important) and explained the two ends of the scale with a visualization. Participants should choose “not at all important” when they thought the trait was neither especially good nor especially bad. They should choose “very important” when they thought the trait *was* especially good or especially bad. This way, we managed to use the same scale for both traits that people indicated to look for in a first step, and traits that people indicated to avoid in a first step. Stated differently, this procedure allowed using the same scale for positive and negative traits.

Next, the study presented each trait on a separate page. At the top of the page, participants saw the trait in bold font. Below, the study asked, “Is this a trait to look for or to avoid when dating?” Participants could respond by clicking one of two clearly labeled buttons. Depending on participants’ response to this question, the study chose which question to ask on the subsequent page. This page always presented the same trait a second time. If participants chose “look for” on the page before, the study now asked, “How important is it to look for this trait in dating?” (1 = not at all important, 7 = very important). If participants chose “avoid”, the study asked, “How important is it to avoid this trait in dating?” (same 7-point Likert scale; see above). This procedure was repeated for all 86 traits in the list.

At the end, participants provided demographics. Sessions lasted about 14 minutes on average.

4.6.2 Results

Data Conditioning. We preregistered to exclude the data for a given trait when participants indicated a valence inconsistent with our earlier studies; that is, when the categorial valence

judgments differed between studies. Thus, we compared the valence ratings of participants in the current study with the valence of the originally sampled traits. Due to this criterion of a valence mismatch, we excluded about 11% of participants' responses on the importance scale.

Importance and Similarity Analysis. For our analysis on the level of participants, we calculated the mean importance for positive traits and the mean importance for negative traits. Participants found it more important to avoid negative traits (M_{neg} = 5.51, SD_{neg} = 0.74) than to look for positive traits (M_{pos} = 5.33, SD_{pos} = 0.63), $t(199) = -4.68$, $p < .001$, 95% CI = [-0.26, -0.10], $d_z = 0.33$ (H1).

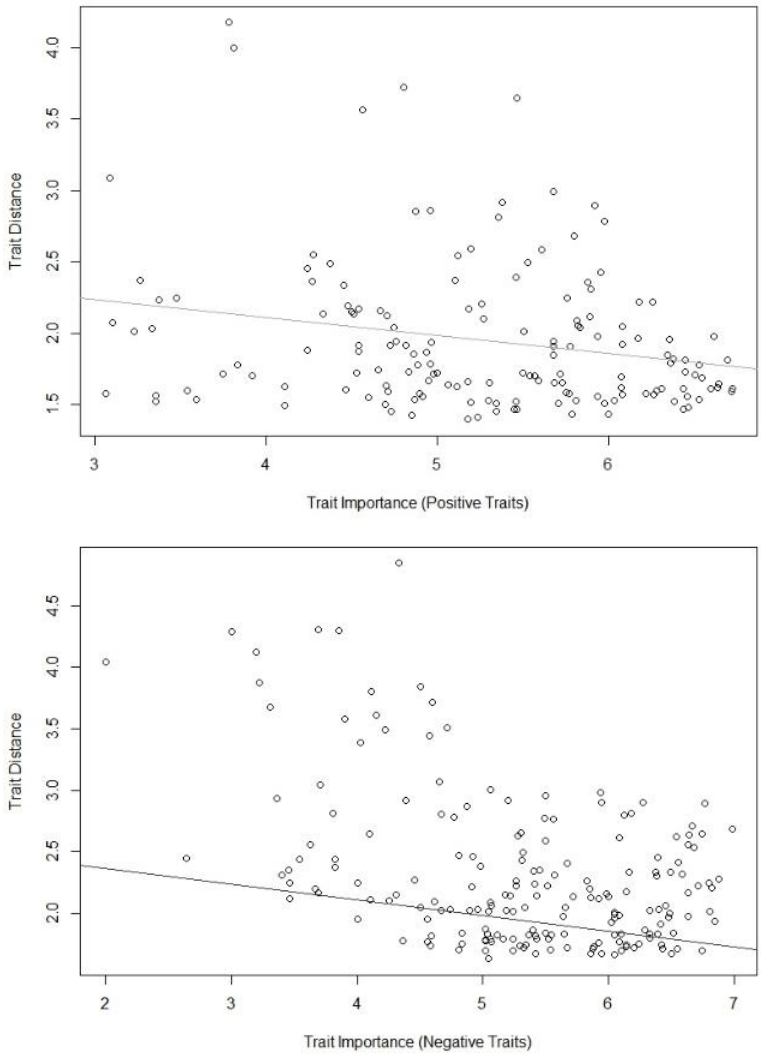
We then ran a mixed-model regression analysis with participants and lists as random factors. The specified model predicted trait importance from the fixed effect trait valence (1 = positive, 2 = negative). Regarding the two random factors, the model included random error components for intercepts. We found a fixed effect of trait valence on the importance rating, $b = 0.18$, $SE = 0.04$, $t(199) = 4.68$, $p < .001$. This finding shows that the effect generalized across participants and lists.

On a trait level, separately for positive and negative traits, we computed correlations between trait importance and the distance scores from Study 2. For this trait level analysis, similar to Study 2, we calculated the mean importance for each trait as the average importance rating of all participants who saw this trait based on ratings from about 50 participants per trait.

For positive traits, we found the expected negative correlation between importance and similarity (H2a), $r(154) = -.23$, $p = .004$. The lower a trait's distance score (i.e., the closer = the more similar the trait to all others), the more important people perceived this trait for dating (see Figure 4.3 top). However, for negative traits, we also found a negative correlation that was even stronger than the one for positive traits (H2b), $r(186) = -.45$, $p < .001$. Contrary to our expectation, for negative traits, people also found a trait the more important the closer (i.e., the more similar) it was to all others (see Figure 4.3 bottom). The correlation for negative traits was significantly larger than the one for positive traits, $z = 2.32$, $p = .010$.

Figure 4.3

Relation between Trait Importance and Trait Distance for Positive and Negative Traits in Study 3



Note. Scatter plots and regression lines for the correlations of trait importance and distance score. Both positive traits (top) and negative traits (bottom) showed a negative correlation of importance and distance.

Lastly, on a content level, we also checked which negative and which positive traits received the highest importance ratings. Table 4.2 shows the top ten most important traits of both valences in Table 4.2 (left two columns). The table provides an idea of which traits seem to be dealbreakers and dealmakers in dating.

Table 4.2

Top Ten Most Important and Most Similar Positive and Negative Traits[3]

	Top Ten Most Important *(Content Level)*		**Top Ten Most Similar *(Structural Level)***	
	Positive Traits (Dealmakers)	**Negative Traits** (Dealbreakers)	**Positive Traits** (Most Central)	**Negative Traits** (Most Central)
1	Trustworthy (6.72)	Abusive (6.98)	Clever (1.40)	Crude (1.63)
2	Kind (6.70)	Unfaithful (6.87)	Natural (1.41)	Stuck-up (1.66)
3	Loyal (6.65)	Dishonest (6.84)	Cultured (1.42)	Shallow (1.67)
4	Genuine (6.64)	Deceiving (6.81)	Helpful (1.43)	Unhumble (1.67)
5	Understanding (6.62)	Untrustworthy (6.80)	Open (1.44)	Disloyal (1.68)
6	Honest (6.61)	Untruthful (6.79)	Family-oriented (1.45)	Self-absorbed (1.68)
7	Caring (6.55)	Hateful (6.76)	Fit (1.46)	Children-unfriendly (1.70)
8	Real (6.53)	Fake (6.74)	Compassionate (1.47)	Ignorant (1.70)
9	Respectful (6.53)	Uncaring (6.71)	Smart (1.47)	Fake (1.70)
10	Supportive (6.51)	Racist (6.66)	Animal-friendly (1.47)	Posing (1.70)

Note. The left two columns show the top ten traits people find most important to look for (positive traits) and to avoid (negative traits) in Study 3. Participants rated importance on a 7-point Likert scale (1 = not at all important to 7 = very important). The mean importance ratings appear in brackets. To facilitate the ratings' interpretation, positive traits' importance ratings on a trait level ranged from 3.06 to 6.72 with M = 5.26 and SD = 0.92; negative traits' importance ratings ranged from 2.00 to 6.98 with M = 5.32, SD = 1.01. The right two columns show the top ten traits with the highest similarity to all other traits of the same valence. We calculated similarity within valence. Positive traits' distance scores ranged from 1.40 to 4.18 with M = 1.95 and SD = 0.52; negative traits' distance scores ranged from 1.63 to 4.85 with M = 2.31, SD = 0.62.

[3] Originally, the top ten most important list also included the positive trait "single (6.73)" and the negative traits "married" (6.74) and "taken" (6.68). However, in hindsight, we do not consider these traits as personality traits but rather as prerequisites to start dating. This also explains their high importance ratings. Therefore, we excluded them in this top ten lists.

Parallel to the top ten most important traits, Table 4.2 also displays the top ten positive and negative traits with the highest similarity as indicated by the lowest distance scores (i.e., most central and closest to all other traits of the same valence; right two columns). Of relevance, while the content and the structural levels are correlated (Figure 4.3), the top ten most important traits *on a content level* (left) and the top ten most similar traits *on a structural level* (right) substantially differed from each other; in fact, the only trait that appeared on both on the structural and the content level was “fake”.

4.6.3 Discussion

Study 3 showed that people rated it more important to avoid negative traits than to look for positive traits. This aligns with general negativity biases in social psychology (Baumeister et al., 2001; Rozin & Royzman, 2001; Unkelbach et al., 2020), and most people likely agree that avoiding an abusive partner is more important than seeking a trustworthy one.

Further, the results highlight the importance of traits’ structural properties for dating. The more similar a trait was to all other traits, the more important people found this trait for dating. Thus, the assumption that more similar traits activate each other more strongly (Unkelbach et al., 2008) might hold independent of valence (see General Discussion).

In Studies 4a and 4b, to highlight the structural level’s relevance, we examined whether traits’ similarity has predictive value for people’s hypothetical behavior in online dating, above and beyond the content level (i.e., importance).

4.7 Study 4a & 4b: Traits’ Dating Probability – Swiping Studies

Studies 4a and 4b examined whether the differential diversity of positive and negative traits predicts behavioral outcomes. We asked whether people would swipe someone with a trait left (i.e., no option to date) or right (i.e., option to date) on a hypothetical dating platform (equivalent to real dating platforms; e.g., Tinder). Study 4a implemented a binary choice (swipe left vs. right) and only preregistered hypotheses for positive traits. Study 4b asked how likely participants would swipe someone with a specific trait left or right with preregistered hypotheses for all traits.

Study 4a. For positive traits, we predicted that the *more* important it is to look for a trait in dating, the *more* likely people will want to date someone with this trait (H1; validity check of trait importance as assessed in Study 3), and the *lower* the distance score (trait similar to others), the *more* likely people will want to date someone with this trait (H2).[4]

For negative traits, we expected bottom-effects for dating probability and, therefore, did not expect participants' responses to correlate with the traits' importance. We assumed people would not swipe someone right of whom they only know one negative trait.

Study 4b. The predictions for positive traits were as before. Due to the observed variability in the dependent variable for negative traits in Study 4a, we additionally preregistered hypotheses for negative traits: the *more* important it is to avoid a trait in dating (H3), and the *lower* the distance score (trait similar to others; H4), the *less* likely people will want to date someone with this trait.

4.7.1 Method

Materials. We used the same four trait lists as in Study 3 (344 traits total) for both studies. We excluded all traits that people did not consistently rate as either positive or negative in our previous studies. As the exclusion criterion, we calculated the percentage of people who rated the valence differently in Study 3 than in the original sampling studies. We set the threshold to 50% and excluded all traits that 50% or more participants rated inconsistently. These exclusions left 318 traits in the analysis. Due to the exclusions, the number of traits and the valence proportion differed slightly between each list (see materials on OSF).

Participants and Design. For each study, we aimed to collect data from 200 English-speaking participants (50% UK-based, 50% US-based) on Prolific. In Study 4a, participants (97 female, 100 male, 2 other, 1 prefer not to say; aged 19 to 79, M_{age} = 35.85, SD_{age} = 11.83) received £1.05 as compensation. For Study 4b, Prolific returned responses from 201 participants (101 female, 100

[4] Note that we mistakenly wrote "the higher the density score (trait is close to all others)" instead of the correct "the lower the density score (trait is close to all others)" in the preregistration. Lower density/distance scores (we use density and distance synonymously here) indicate higher closeness and similarity to all other traits.

male, 0 other, 0 prefer not to say; aged 19 to 75, M_{age} = 37.04, SD_{age} = 11.87). They received £0.90 as compensation. Both studies randomly assigned participants to one of the four trait lists.

Procedure. After the informed consent, when participants agreed to participate, they learned that they would see different traits that people look for or avoid when dating. Their task was to imagine seeing people with the given trait on a dating platform. As before, each trait appeared on a separate page. On the top of the page, the study stated, "Suppose a potential dating partner is [*trait*]."

Study 4a. For each potential dating partner, participants could swipe left or right. Swiping left indicated *not* wanting to date this person. Swiping right indicated that it *would* be an option to date this person. Specifically, the study stated, "Would you swipe left or right?". Participants then chose between "swipe left (no option to date)" and "swipe right (option to date)." This procedure was repeated for all traits in the list.

Study 4b. For each potential dating partner, the study asked, "How likely would you swipe this person left or right?". Participants responded on a 7-point Likert scale from 1 = "definitely swipe left (no option to date)" to 7 = "definitely swipe right (option to date)." This procedure was repeated for all traits in the list.

In the end, the studies asked for demographics. On average, sessions lasted about 6.5 (Study 4a) to 7 (Study 4b) minutes.

4.7.2 Results

For Study 4a, we calculated the dating probability of each trait as the percentage of people who would swipe right (values between 0 and 1) when they knew a person had this trait in dating. For Study 4b, we calculated the mean of all participants' responses on the swiping scale and treated this mean as our dependent variable, "dating probability". Higher values in both studies indicated a higher dating probability for a given trait. Table 4.3 shows the correlations of traits' importance, distance, and their dating probabilities in Studies 4a and 4b.

Table 4.3

Correlations Between Trait Importance, Distance (Indicating Similarity), and Traits' Dating Probability in Studies 4a & 4b

	Study 4a			Study 4b		
	Importance	**Distance**	**Dating probability**	**Importance**	**Distance**	**Dating probability**
			Positive Traits			
Importance	—			—		
Distance	-0.23**	—		-0.23**	—	
Dating probability	0.56***	-0.07	—	0.81***	-0.08	—
			Negative Traits			
Importance	—			—		
Distance	-0.45***	—		-0.45***	—	
Dating probability	-0.81***	0.34***	—	-0.91***	0.29***	—

Note. Correlations between importance and distance are identical for Studies 4a and 4b, as we took these values from Studies 2 (distance) and 3 (importance).

* $p < .05$. ** $p < .01$. *** $p < .001$.

To analyze whether trait importance and distance scores could predict the dating probability of positive traits, we conducted a multiple linear regression with dating probability as the dependent

variable and trait importance and distance as the two predictors. We used the importance data from Study 3, and the distance data from Study 2.

To check whether the effect generalizes across participants, we also conducted a preregistered mixed model regression analysis that predicted the dating probability on a person level from the fixed effects of trait importance and trait distance. Participants were treated as random factors with random error components for intercepts.

Study 4a. ***Positive Traits.*** We had swiping probabilities for 150 positive traits. For the overall regression model, the R^2 was .31 (adjusted R^2 = .30). According to Cohen (1988), this indicates a high goodness-of-fit. In this model, both predictors, importance and distance taken together, significantly predicted the dating probability on a trait level, $F(2, 147) = 32.95$, $p < .001$. Importance was also a significant unique predictor, $b = .05$, $t(149) = 8.05$, $p < .001$. The more important people perceived a positive trait to be for dating, the higher the dating probability was; that is, the more people indicated that they would swipe right on a person with this trait (H1; see Figure 4.4 top left panel). However, distance was no significant unique predictor for the dating probability, $b = -.001$, $t(149) = -.06$, $p = .951$. Thus, the data did not support our second hypothesis. How similar a positive trait was to all other positive traits did not predict how likely people swiped right on a person with this trait (H2; see Figure 4.4 top right panel).

However, the preregistered logistic mixed model that predicted the dating probability on a person level (binary; 0 = swipe left, 1 = swipe right) from the fixed effects trait importance and trait distance with random error components for intercepts for participants showed that both importance, $b = 1.11$, $SE = 0.07$, $z = 16.07$, $p < .001$, and distance, $b = -0.26$, $SE = 0.13$, $z = -1.98$, $p = .047$, were significant unique predictors of the dating probability.

Negative Traits. We preregistered to explore the regression for negative traits exploratorily to check whether importance and distance predict the dating probability for those negative traits. We had swiping probabilities for 168 negative traits. We anticipated bottom-effects in the dependent variable for negative traits. However, there was more variability in the dating probability for negative

(n = 168, M = 0.15, SD = 0.16) compared to positive traits (n = 150, M = 0.95, SD = 0.07). We calculated the same multiple linear regression as for positive traits on a trait level. Overall, importance and distance significantly predicted negative traits' dating probability, R^2 = .70 (adjusted R^2 = .70), $F(2, 165) = 195.50$, $p < .001$. The model had an even better fit than the model for positive traits. Separately, importance again significantly predicted the dating probability on a trait level, b = -0.14, $t(167) = -18.06$, $p < .001$. Thus, the first hypothesis applied to negative traits as well. The more important people found it to avoid a negative trait in dating, the fewer people indicated that they would swipe right on a person with this trait (H1; see Figure 4.4 bottom left panel). This time, distance was also a significant unique predictor for the dating probability, b = 0.08, $t(167) = 5.12$, $p < .001$. The more similar a trait was to all other traits (i.e., the lower the distance score), the lower the dating probability; that is, the less likely people wanted to meet someone with this trait (H2; see Figure 4.4 bottom right panel).

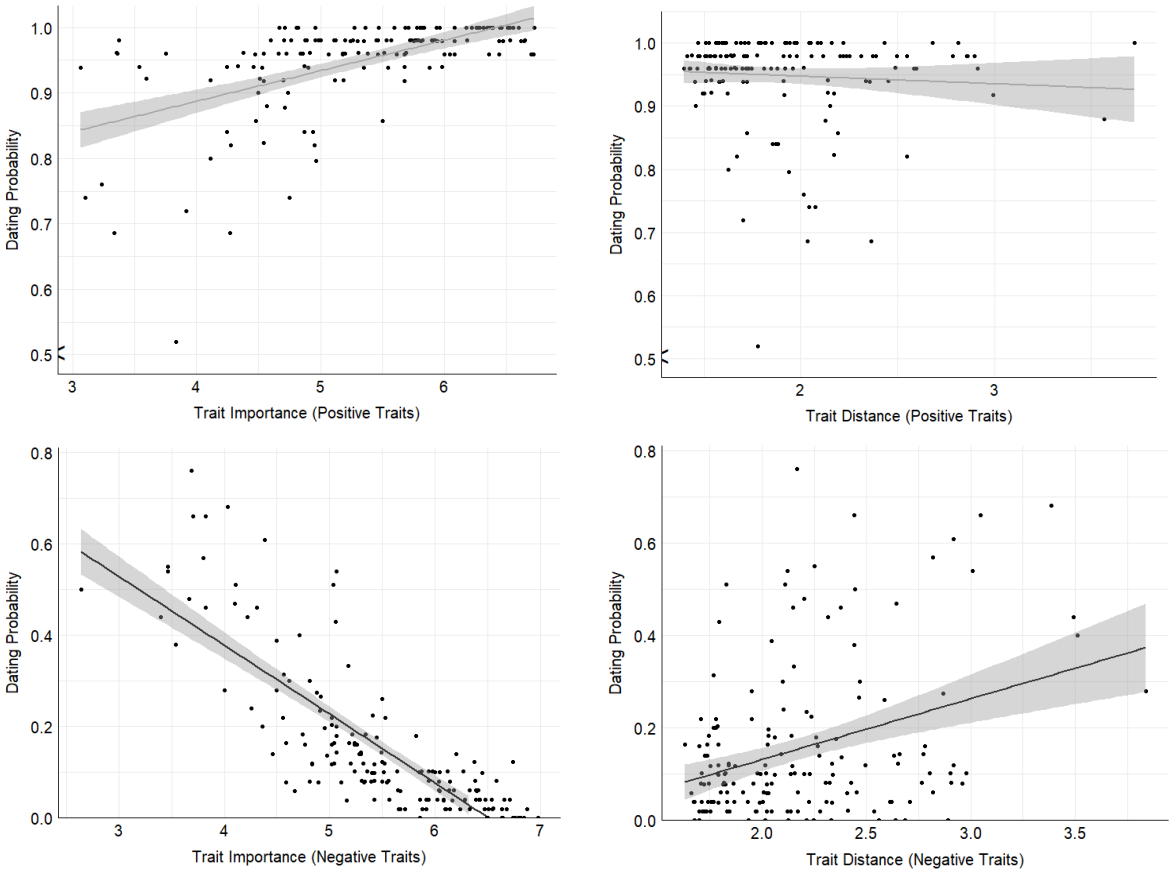
To be consistent with the analysis of positive traits, we also ran the equivalent logistic mixed model for negative traits. In this model, both importance, b = -1.37, SE = 0.05, z = -29.00, $p < .001$, and distance, b = 0.57, SE = 0.08, z = 7.32, $p < .001$, significantly predicted the dating probability on a person level.

Note that importance and distance are correlated (see Table 4.3). For negative traits, the correlation was even stronger than for positive traits. However, the significant regression coefficients for distance in the models including distance and importance show that distance predicts the dating probability above and beyond importance. Thus, similarity (i.e., our suggested structural component) explained unique variance of how likely people will want to date someone with this trait.

We preregistered to also include data from Study 3 on how much people agree on whether a trait is positive or negative. This valence consensus analysis can be found in the Supplements (Supplement 2).

Figure 4.4

Effect of Traits' Importance and Distance on the Dating Probability (Separately for Positive and Negative Traits) in Study 4a



Note. Scatter plots and regression lines for the effect of positive (top two panels) and negative (bottom two panels) traits' importance (left two panels) and their distance scores (right two panels) on the dating probability in Study 4a. The grey shading shows the 95% confidence interval. As the dating probability (y-axis) was calculated as the percentage of "swipe-right" responses, it could take values between 0 and 1. Higher values indicate a higher dating probability (i.e., the higher the values, the more people wanted to meet someone with this trait).

Study 4b. We first checked whether the change to a scale to assess the dependent variable led to more variability for positive traits. As expected, there was more variability in Study 4b (n = 150, M = 5.83, SD = 0.49) than in Study 4a (n = 150, M = 0.95, SD = 0.07). Overall, there was

still more variability for negative (n = 168, M = 2.19, SD = 0.76) than for positive traits (n = 150, M = 5.83, SD = 0.49).

Positive Traits. The multiple linear regression model for the 150 positive traits showed that importance and distance taken together significantly predicted the dating probability, R^2 = .65 (adjusted R^2 = .65), $F(2, 147) = 138.8$, $p < .001$. However separately, while importance was a significant predictor, $b = 0.45$, $t(149) = 16.58$, $p < .001$, distance was not, $b = 0.02$, $t(149) = 0.34$, $p = .735$. Thus, how likely people wanted to date someone with a specific positive trait was related to how important people perceived this trait to be for dating (H1; see Figure 4.5 top left panel) but was not related to how similar this trait was to all other positive traits (H2; see Figure 4.5 top right panel).

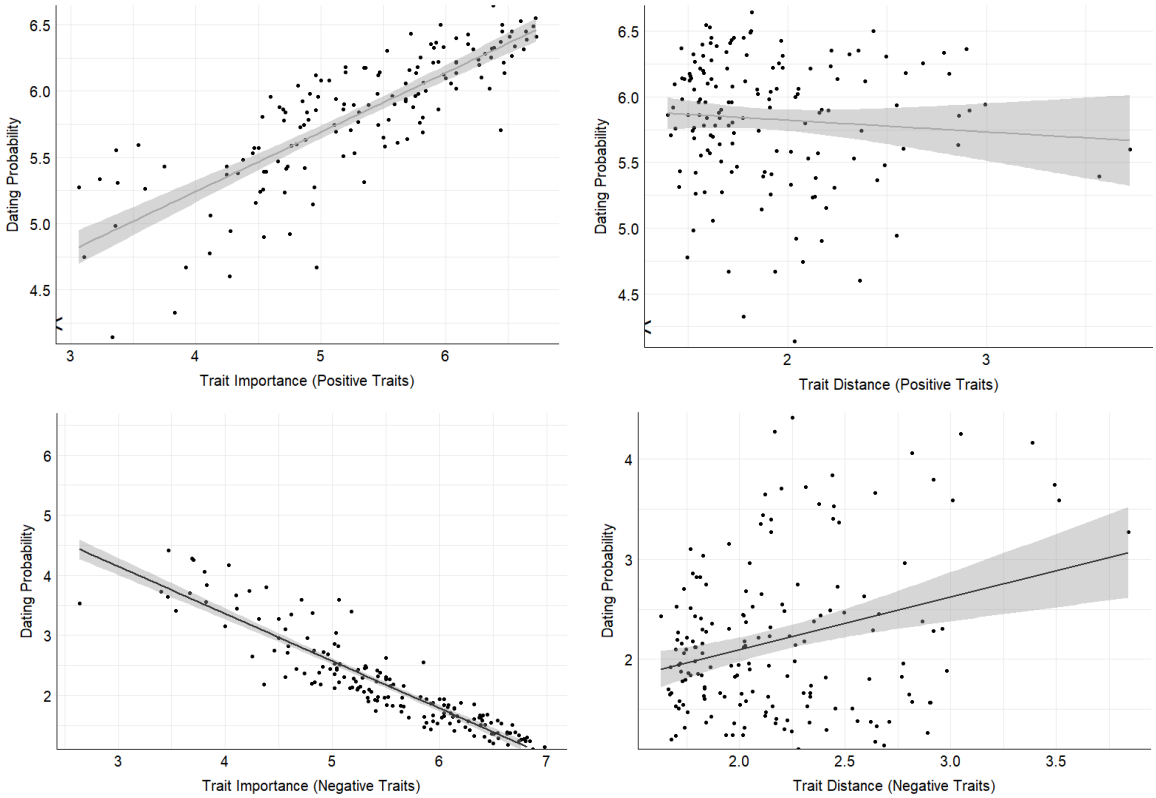
A linear mixed model that predicted the dating probability on a person level from the fixed effects trait importance and trait distance with random error components for intercepts for participants also showed no significant effect of distance, $b = -0.006$, $SE = 0.03$, $t(7372) = -0.22$, $p = .827$, above and beyond the significant effect of importance, $b = 0.46$, $SE = 0.01$, $t(7378) = 36.54$, $p < .001$, on the dating probability.

Negative Traits. For the 168 negative traits, overall, importance and distance predicted traits' dating probability, R^2 = .86 (adjusted R^2 = .85), $F(2, 165) = 487.8$, $p < .001$. Again, the model fit was better than the fit for positive traits. In this overall model, both variables significantly predicted the dating probability separately. The more important people found it to avoid a negative trait in dating, the less likely people wanted to date someone with this trait (H3; see Figure 4.5 bottom left panel), $b = -0.77$, $t(149) = -29.62$, $p < .001$. Also, the more similar (i.e., lower distance score) a negative trait was to all other negative traits, the more impact it had on the dating probability, $b = 0.28$, $t(167) = 5.17$, $p < .001$. For negative traits, this means the more similar a trait was to all other negative traits, the less likely people indicated to swipe a person with this trait right (i.e., option to date; H4; see Figure 4.5 bottom right panel). The linear mixed model for negative traits on a person level showed the same results in that both importance, $b = -0.77$,

SE = 0.01, *t*(8316) = -57.45, *p* < .001, and distance, *b* = 0.28, *SE* = 0.03, *t*(8267) = 10.26, *p* < .001, were significant predictors of the dating probability.

Figure 4.5

Effect of Traits' Importance and Distance on the Dating Probability (Separately for Positive and Negative Traits) in Study 4b



Note. Scatter plots and regression lines for the effect of positive (top two panels) and negative (bottom two panels) traits' importance (left two panels) and their distance scores (right two panels) on the dating probability in Study 4b. The grey shading shows the 95% confidence interval. As the dating probability (y-axis) was assessed on a 7-point Likert scale, it could take values between 1 and 7. Higher values indicate a higher dating probability (i.e., the higher the values, the more likely people wanted to meet someone with this trait).

This finding replicated the results of Study 4a and was in line with Hypotheses 3 and 4. Again, the significant effect of distance in the model that included both predictors indicated that distance had a predicting value for the dating probability above and beyond importance. However, this only held for negative traits in Study 4b.

4.7.3 Discussion

The more important people found a positive trait for dating, the more people swiped a person with this trait right. We did not find an effect of positive traits' distance on the dating probability robustly across analyses and across studies.

Different than expected, negative traits varied more in their dating probability than positive traits. In hindsight, this aligns with the negativity diversity's implication that people all look for the same but vary in what they avoid. Some might find unadventurous and homely to be negative traits, while these might be not negative for others. Overall, negative traits were more diagnostic for predicting swiping decisions. Above and beyond a negative trait's importance for dating (content level), its similarity to other negative traits (structural level) predicted the swiping behavior across two studies.

4.8 General Discussion

We approached partner preferences on a structural rather than a content level, building on the EvIE model (Unkelbach et al., 2019). In four studies, we showed that the model's principles (positivity frequency and negativity diversity) apply to traits in dating (Studies 1-2), that these structural properties of traits (a) relate to trait importance on a content level (Study 3) and (b) could predict dating behavior based on negative traits in a simplified online dating paradigm (Studies 4a-4b).

Study 3 provided evidence for the prediction following from the EvIE model that those traits most similar to other traits of the same valence should be most important for dating. In hindsight, we realized that this relation should hold for positive and negative traits equally. There is no a priori reason to assume that negative traits do not activate each other, although to a lesser degree than

positive traits (see Gräf &Unkelbach, 2016, 2018). In line with general negativity biases in social psychology (e.g., Baumeister et al., 2001), people found avoiding negative traits more important than looking for positive traits, and the most important traits on a content level differed from those on a structural level. Finally, negative traits' similarity (structural) was more diagnostic for predicting swiping behavior than positive traits' similarity, *above and beyond* traits' importance. This finding aligns with the general notion in social perception that negative information is more informative and diagnostic (Fiske, 1980; Skowronski & Carlston, 1987). It also highlights the need to investigate the, so far, largely neglected negative traits in partner preference research. Most likely, other researchers followed the same common-sense assumptions we had: all negative traits are dealbreakers, are generally not stated, and thereby, have no predictive value. However, as there is much agreement on the positive side (i.e., people all look for the same), the higher diversity on the negative side promises substantial additional explained variance in dating decisions.

4.8.1 Implications

Thus, our work ties in with and adds to recent research highlighting the value of also examining dealbreakers in dating (e.g., Csajbók & Berkics, 2017, 2022; Csajbók et al., 2023; Jonason et al., 2015, 2020). As Csajbók et al. already pointed out, "asking participants what they *do not want* may be less intuitive, but such considerations may reveal new information about mate choice" (Csajbók et al., 2023, p. 2). We add to this existing research on the *structural level*, which highlights why it might be critical to consider the less intuitive case of negative traits in dating. We believe this opens a fresh research venue, for example, by investigating how traits match with a partner or friends (e.g., Alves et al., 2016) or whether a personality profile is coherent or not (e.g., Kunda & Thagard, 1996).

On a practical level, one might indeed remark that a dating profile displaying only one negative trait is unlikely, as people in online dating want to present themselves as attractive and positive as possible (e.g., Fiore et al., 2008; Toma & Hancock, 2010). However, people are also motivated to present themselves accurately to prevent expectation violations later-on (Fiore et al.,

2008). A profile exclusively featuring positive traits likely is inaccurate. Thus, mentioning a negative trait on one's profile might enhance the credibility and likability of the whole profile, making it relevant to study negative traits in online dating.

4.8.2 Limitations and Open Questions

The sample only covers "WEIRD" participants (Henrich et al., 2010). However, the EvIE model is a general model that builds on universal biological principles (see Unkelbach et al., 2019) and would not predict different outcomes for other samples.

Further, we did not include physical attractiveness. We showed no pictures to keep the design as controlled as possible. Admittedly, in real dating, pictures most strongly predict profile attractiveness (e.g., Fiore et al., 2008). Note that we do not doubt the central role of pictures in deciding whom to swipe left or right. Rather, we argue that our findings are independent of physical attractiveness and will likely work as an add-on. Given two profiles with equally attractive pictures, an important and similar negative trait will more likely cause a swipe left than a less important and less similar one.

Further, dating decisions also depend on a match between one's own and the potential partner's traits. People generally like their ideal partners to be similar to themselves concerning physical appearance, abilities, personality, and traits (e.g., Botwin et al., 1997; Dijkstra & Barelds, 2008; Watson et al., 2014). Future research should examine the dyadic effects of both partners' positive and negative traits that vary in importance and similarity. Notably, the structural approach allows direct implementations and tests of such effects (Alves et al., 2016).

Moreover, our work uses hypothetical swiping scenarios and only covers the first step in online dating. Indeed, an individual's initial preferences may diverge from their actual choices (e.g., Eastwick & Finkel, 2008; Joel et al., 2014). However, stated preferences still affect people's first choices of whom to interact with (Eastwick et al., 2011). Also, these first actions, as in our case swiping, is the first step of finding a potential partner and therefore the first step towards a relationship (Denrell, 2005).

Lastly, our design is simplified as we show only one trait. In real life, “traits come in bundles” (Li et al., 2002, p. 948), and people make trade-offs. Future research may include trait combinations and their dynamics. For instance, it would be interesting to examine whether similar positive traits can outweigh less similar negative traits and thereby still lead to an overall positive profile evaluation.

Table 4.4

Table of Limitations

Participant Sampling	The studies included online samples of UK- and US-participants from Prolific Academic and one convenience sample of students from a large European university. We do not know whether the findings generalize to other countries and cultures. However, as the EvIE model is a general model of the information ecology, we would not predict different outcomes in other contexts.
Generalizability to Non-Personality Traits	We did not show profile pictures and did not examine physical attractiveness attributes. However, first, we would predict the positivity frequency and the negativity diversity in the same way for physical attributes as for traits. Second, we assume that profile pictures would add to, not interact with, our effects.
Matching of Traits	The decision whom to swipe right will also be determined by whether there is a match between the own and a potential partner’s traits. We did not investigate this.
External Validity	We conducted laboratory and online studies and did not examine real dating decisions; thereby, external validity is low.
Simplified Design	Profiles in real life include more than one trait. We tackle the question of trait trade-offs and interplays between positive and negative traits in ongoing research.

4.9 Conclusion

People spontaneously think of more traits they look for than traits they avoid in others when dating online. People also agree more on which traits to look for than on which traits to avoid. Thus, there are more ways to be bad than good, but in the end, people all look for the same positive traits. For negative traits, their similarity to all other negative traits predicted people's swiping behavior above and beyond trait importance. Thus, negative traits seem to be more diagnostic in predicting swiping behavior. Applying the EvIE model to traits in dating introduces a structural level for research on partner preferences and highlights the need to further include dealbreakers (i.e., negative traits) in partner preference research rather than solely focusing on dealmakers (i.e., positive traits).

Chapter 5: Shared and Unshared Positive Versus Negative Attitudes

Given that the similarity effect received a lot of empirical attention (e.g., Montoya et al., 2008; Montoya & Horton, 2013; but see 1.2.2), surprisingly little research investigated whether the valence of people's shared attitudes changes the strength of the similarity-liking link. The little research that was made suggested a negativity advantage in that negative shared attitudes bond stronger than positive shared attitudes (Bosson et al., 2006; Weaver & Bosson, 2011). A higher bonding power of negative shared attitudes would match the prominent notion that negativity is more impactful than positivity in impression formation and person perception (for a review, see Kanouse & Hanson, 1972). Contrary to this research, we suggested a positivity advantage for shared attitudes on likability; that is, a dominance of positive over negative shared attitudes. Among other aspects, we derive this notion from the negativity diversity property of the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019; see 3.1). As negative information is more diverse than positive information, there are usually various reasons to dislike something, while there are only a few reasons to like something (Alves et al., 2017b). Based on this, we argue that people's positive attitudes (i.e., their likes) may be more self-revealing than their negative attitudes (i.e., their dislikes). This would suggest that sharing positive attitudes bonds stronger than sharing negative attitudes. We test this prediction in this chapter. In addition, we examine whether positivity or negativity dominates when attitudes are *not* shared.

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Please note that certain modifications were made to the headings, citation style, and formatting to align with the layout of this dissertation. No changes were made to the content of the article.

Attitude Similarity and Interpersonal Liking: A Dominance of Positive Over Negative Attitudes

Abstract

Sharing attitudes leads to liking. While this similarity effect is well-established, past research rarely addressed whether positive and negative attitudes differ in their potential to elicit liking. Hence, it is unclear whether people prefer others who share their likes or others who share their dislikes. Four studies (*N* = 402) showed that likes have a stronger potential to elicit liking than dislikes. That is, participants found others who shared their likes more likable than others who shared their dislikes (Study 1). Also, participants found others who did not share their likes least likable, while not sharing dislikes was not as detrimental to liking (Study 2). We argue that three aspects contribute to this finding. First, people generally prefer likers to dislikers (Study 3). Second and third, likes are stronger and more self-revealing than dislikes (Studies 2 & 4). We discuss the present work's novel insights into the similarity effect and their implications for dating and friendship initiation.

Keywords: interpersonal liking, similarity, attitudes, impression formation, dating, friendship initiation

5.1 Introduction

People like similar others. When getting to know each other, either as future friends or in a dating context, people typically feel attracted to others who they perceive as similar to themselves regarding their interests, physical features, personality traits or attitudes (Montoya et al., 2008). Online dating and other social media platforms regularly exploit this by matching users who have similar attitudes, as this increases the likelihood that two people will initially like each other. The so-called similarity effect is well-established and describes one of the strongest effects in all social sciences (Berger, 1973; Montoya et al., 2008). Yet, a central question that has surprisingly been neglected by past research is whether positive and negative attitudes differ in their potential to elicit liking. In other words, it is unclear whether shared likes or shared dislikes create more initial interpersonal liking. While *Facebook dating*, for example, matches its users based on their shared Facebook likes such as favorite musicians or politicians, the dating app *Hater* matches users based on things they dislike.

In the sparse research that has been done on this topic, results suggest that shared dislikes may evoke stronger liking (Bosson et al., 2006; Weaver & Bosson, 2011). However, this finding has only been observed under specific conditions where people share a weak mutual dislike for another person. Moreover, the idea that shared dislikes might have greater bonding potential than shared likes contradicts several principles of impression formation such as people's general preference for others who express likes over others who express dislikes (Burnstein, 1967; Folkes & Sears, 1977). Also, most interest groups form on the basis of a common like, as sharing a preference is accompanied with more behavioral implications in the sense of common activities that people can do together. Sharing dislikes, on the other hand, does not set a common ground for activities, but would at most enable negative conversations. Therefore, a broader and more thorough empirical test of likes' and dislikes' influence on liking is needed. Contrary to previous suggestions, we predict that shared likes have a stronger potential to elicit liking than shared dislikes in the initial stages of impression formation. More specifically, we hypothesize that people especially like others who share

their likes. We will delineate this prediction in more detail in the following and then present data from four impression formation studies in which we compared the influence of shared (and unshared) likes and dislikes on people's initial impression towards a target person.

5.1.1 Sharing Attitudes Attracts

The similarity effect describes the phenomenon that people like and feel attracted to other people who they perceive as similar to them. This applies to physical features (Peterson & Miller, 1980; Stevens et al., 1990), personality traits (Carli et al., 1991), and attitudes (Bond et al., 1968; Byrne, 1961). For example, people like others who share their taste in music (Boer et al., 2011), hobbies (Jamieson et al., 1987), and values (Lewis & Walsh, 1980). The most prominent explanations for the effect are that similarity bonds because it establishes psychological balance, which leads to attraction (Heider, 1946, 1958); because similar people reinforce one's own world view and thereby satisfy the effectance motive (Byrne, 1971); because people infer further positive attributes from someone sharing their attributes (Ajzen, 1974; Kaplan & Anderson, 1973; Tesser, 1971); or because people expect similar others to like them, which makes them like these people back (Condon & Crano, 1988). Of these, Byrne's reinforcement model and the information processing perspective received the most empirical attention, and the latter was able to explain most findings in a large meta-analytic investigation of 240 studies exploring the similarity effect (Montoya & Horton, 2013).

Past research has also identified several moderators of the similarity effect (see Montoya et al., 2008, for a review). Early research showed that perceived rather than actual similarity influenced friendships initiation (Newcomb, 1961). Similarly, more recent work has found that perceived, not actual similarity increased initial liking in speed-dating contexts (Luo & Zhang, 2009; Tidwell et al., 2013; for a meta-analysis, see Montoya & Horton, 2013). In addition, previous research has found that sharing rare attitudes leads to especially strong liking (e.g., Alves, 2018; Montoya & Horton, 2013; Vélez et al., 2019), and so do attitudes that people perceive as important or central to them (Bahns et al., 2017; Montoya & Horton, 2013). Also, the effect is moderated by the expectation that the development of an actual relationship with this person is likely or unlikely (Aron et al., 2006).

That is, the similarity effect is reduced when participants learn that they are very likely to get along with the other person. Aron et al. (2006) explain this with the self-expansion model of motivation and cognition in close relationships. Accordingly, dissimilar people offer the opportunity to expand the self and can therefore seem more attractive than similar people, as long as there is certainty that the other person will like the self. In addition, the strength of the similarity effect differs depending on the culture or domain (Miller, 2021). For example, there is a weaker relation between similarity and attraction for the domain of personalities than for the domain of attitudes (Watson et al., 2004; see Miller, 2021, for a review). Past research has shown that perceived similarity of another person also influences the moral judgment of that person. People judge similar others more morally superior to dissimilar others, which is mediated by liking (Bocian et al., 2018). This underlines the remarkable power that perceived similarity has in impression formation. A question that has received much less attention in the past is whether people's positive or negative attitudes are the main driver of the similarity effect.

5.1.2 Shared Likes and Shared Dislikes

Given that a central distinction of people's attitudes is whether they are positive or negative, the question naturally arises concerning whether people's likes and dislikes differ with regard to their potential to elicit liking. The available empirical evidence suggests that sharing negative attitudes may lead to more interpersonal liking than sharing positive attitudes (Bosson et al., 2006; Weaver & Bosson, 2011). The authors of those studies predicted this based on the well-documented appeal of gossip (Dunbar, 2004; Foster, 2004). More generally, dislikes' stronger influence on liking is also in line with the notion that “bad is stronger than good” (Baumeister et al., 2001), according to which negative information attracts more attention, is processed more deeply, and thereby receives more weight in impression formation (Ito et al., 1998). Indeed, Bosson et al. (2006) and Weaver and Bosson (2011) showed that participants felt closer to, and more familiar with others sharing their negative attitudes than with those who shared their positive attitudes.

However, those findings were confined to weakly-held attitudes, and they only applied to sharing a dislike for a certain person who could either be a real person (e.g., a professor) or a fictional character. This limits the generalizability of these results, especially with regards to dating contexts and friendship initiation. First, those attitudes that are likely to drive most of interpersonal attraction between dating partners or potential friends are those they feel strongly about. Second, attitudes towards other people is only one of many attitude domains that are relevant in determining interpersonal liking. Thus, we used a more representative stimulus sampling to adequately compare likes' and dislikes' potential to elicit initial liking of new acquaintances.

Of note, and contrary to Bosson et al.'s (2006) findings, their participants expressed the lay theory that shared likes promote more interpersonal closeness than shared dislikes. Their studies explicitly queried this folk belief using three items. For example, participants should indicate the extent to which discussing another person whom they both like (dislike) enhances their closeness to someone (Bosson et al., 2006). This lay theory is in line with several principles of impression formation. Most basically, people typically prefer likers over dislikers (Burnstein, 1967; Folkes & Sears, 1977). That is, people who express disliking a person or an object appear less likable themselves compared to people who express liking a person or an object. Folkes and Sears (1977) suggested that liking something or somebody itself is perceived as a positive trait that may give rise to a halo effect.

A potentially stronger bonding potential of likes is also reflected by the fact that most online or offline interest groups are formed on the basis of a common like. For example, there are countless music fan groups such as *Beliebers* whose members like the same artist, forming a remarkably strong bond (Lonsdale & North, 2009). While there are certainly examples of strong interest groups that are motivated by shared dislikes, such as protest groups, the majority of interest groups seems to form on the basis of shared likes. One reason may be that shared likes have more behavioral implications than shared dislikes. For example, when two individuals learn that they like the same musician, this implies that they could attend a concert together in the future, and if they like the same travel

destination, they could travel there together. A shared dislike for a musician or a travel destination, on the other hand, may simply result in avoidance (Denrell & Le Mens, 2007), but creates no interpersonal reward such as positive shared experiences (Lott & Lott, 1974). This suggests that likes, in general, play a more important role in people's lives compared to dislikes. Since attitude importance is a key determinant of attitude strength (Visser et al., 2006), we reason that people's likes may actually be stronger than their dislikes to begin with. If people feel more strongly about their likes compared to their dislikes, they may also feel more strongly about a person they are newly getting to know who shares their likes.

Previous research also suggests that people's likes may be more self-revealing than their dislikes. This follows from the idea that there are usually various reasons to dislike something, while there are only a few reasons to like something (Alves et al., 2017b). For example, people who like ice cream like it for similar reasons, whereas people who dislike ice cream dislike it for different reasons (Gershoff et al., 2007). Gershoff et al. (2007) refer to this as attitude ambiguity and argue that dislikes are more ambiguous and therefore less informative than likes. Likewise, research by Leising et al. (2010) found that people who like certain celebrities such as the pope produce highly similar personality profiles of the pope, while people who dislike the pope produce more divergent profiles. The implications of this can be illustrated using an example. When two individuals both strongly dislike the movie “Inception”, they may dislike it for different reasons (e.g., one person might dislike action films in general, another person dislikes the movie's length, yet another person does not like the camera work, etc.), whereas two other individuals' shared liking for “Inception” is more informative in the sense that both individuals like it for similar reasons, because liking a movie overall means to like most of its characteristics (e.g., both Leonardo DiCaprio and plot twists, etc.). Consequently, people may consider their likes as more self-revealing about who they are than their dislikes and this impression may actually be true.

In sum, the question of whether shared likes or dislikes have a stronger potential to elicit initial liking is far from settled, and there are several theoretical grounds to expect that likes trump dislikes in interpersonal impression formation.

5.2 The Present Work

We tested our prediction that likes have a stronger potential to elicit liking than dislikes in four studies that also explored potential explanations for the effect. Most critical to ensuring generalizability is to use an ecologically valid stimulus sample. That is, we want to know whether people's *relevant* likes and dislikes in different attitude domains differ with regard to their potential to evoke liking. Thus, we asked participants to name several of their likes and dislikes from eight attitude domains, and then asked them how likable they would find someone who shared the respective like or dislike (Study 1). Some of the domains were person-related (i.e., celebrities and musicians), the others referred to movies, food, drinks, books, leisure activities, and countries, representing topics that are likely to come up during early online and offline communications among potential dating partners and friends who newly get to know each other.

In Study 2, we examined whether the predicted stronger initial attraction potential of likes also applies to unshared attitudes. According to previous research by Rosenbaum (1986), perceived dissimilarity elicits repulsion and we tested whether unshared likes also elicit a stronger dislike for another person compared to unshared dislikes. That is, we sought to explore whether people feel more strongly repelled when others do not share their likes compared to when they do not share their dislikes. In this study, we also tested a first potential explanation for the liking asymmetry, namely whether likes and dislikes differ regarding their attitude strength.

In Studies 3 and 4, we explored whether a preference for likers (Folkes & Sears, 1977) contributes to the effect by both experimentally manipulating (Study 3) and controlling for (Study 4) whether the other person is a liker or a disliker. For this purpose, we generated fictional interests (see supplements). Finally, in Study 4, we also tested whether likes are more self-revealing than

dislikes. Similar to attitude strength, differences in likes' and dislikes' self-revelation value may account for the predicted stronger potential of people's likes to create initial attraction.

We report all measures, manipulations, and exclusions in the four studies. Materials, data, codebook, and analysis code are available on OSF (https://osf.io/va6su/?view_only=b642c56c18b5485b8df76ac f137f8ee0).

5.3 Study 1: Shared Likes and Dislikes

Study 1 asked participants to name two things they like and two things they dislike from eight attitude domains (movies, musicians, leisure activities, food, books/magazines, drinks, celebrities, and countries). Subsequently, we asked participants for each of their likes and dislikes how likable they would find someone who shares the respective attitude. We predicted that participants would find target persons who share a like more likable compared to those who share a dislike.

5.3.1 Method

Participants and Design. We aimed for a sample size of 100 participants, which provides sufficient power (> .90) to detect small-to-medium-sized effects (d_z = 0.30) with alpha at the conventional 0.05 level in the present repeated-measures design (Cohen, 1988). This was based on the small-to-medium-sized effects that Bosson et al. (2006) found in their comparisons of liking for others with shared positive versus shared negative attitudes. Sample size was determined before any data analysis. We recruited 100 participants (64 female, 35 male, 1 other, mean age = 33.45) via the Amazon Mechanical Turk (MTurk) online platform. All participants were located in the U.S. and received a $0.70 compensation.

Attitude valence (i.e., like vs. dislike) was the only independent variable and varied within-subjects, resulting in a quasi-experimental design. Participants' likes and dislikes were sampled from eight attitude domains to ensure generalizability of our stimuli. The dependent variable was the perceived likability of fictional target persons.

Procedure. The study used the Qualtrics software. The instructions informed participants about their right to quit the study at any point and ensured that participation was anonymous and voluntary.

The study first queried a few demographical questions. Note that we did not collect information on participant race in our studies, as we did not have any hypotheses regarding a potential influence of racial background. Then, participants indicated two likes and two dislikes from each of the eight attitude domains. One block always consisted of two textboxes, in which participants should enter two likes or two dislikes, respectively. Whether participants first provided likes or dislikes and the domain order were randomized.

Next, for each of their likes and dislikes, participants were asked to imagine meeting a person who also likes [name of like], or also dislikes [name of dislike], and to indicate how likable they would find such a person (1 = not at all likable, 9 = extremely likable). This procedure was repeated for all 16 likes and all 16 dislikes.

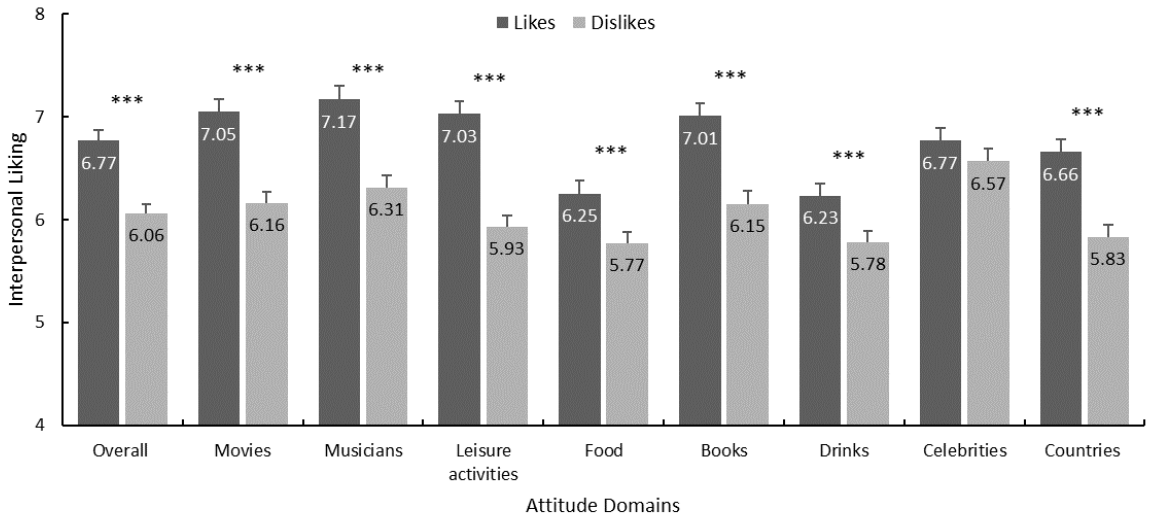
At the end, participants were debriefed, thanked, and received a code to claim their compensation via MTurk. We deidentified all collected responses and only stored anonymous data.

5.3.2 Results

We conducted paired sample *t*-tests to compare the mean likability ratings for target persons sharing participants' likes with those sharing their dislikes, separately for each domain, as well as across all domains. As predicted, participants overall found persons who shared their likes more likable than persons who shared their dislikes, M_{likes} = 6.77 (SD_{likes} = 0.95) vs. $M_{dislikes}$ = 6.06 ($SD_{dislikes}$ = 0.89), $t(99) = 10.50$, $p < .001$, $d_z = 1.05$, 95% CI = [0.84, 1.26]. As illustrated in Figure 5.1, this effect was evident in all eight domains, and significant in all but one.

Figure 5.1

Likability of Target Persons Sharing Participants' Likes Versus Dislikes in Study 1



Note. Mean likability ratings for target persons sharing participants' likes or dislikes in eight attitude domains in Study 1. Error bars represent standard errors of the means.

*** $p < .001$.

5.3.3 Discussion

As predicted, participants found others who shared their likes more likable than others who shared their dislikes. This effect also generalized across the different attitude domains. Hence, counter to previous claims that shared dislikes are more potent in promoting interpersonal liking (Bosson et al., 2006; Weaver & Bosson, 2011), Study 1 found that representatively sampled likes from attitude domains that cover typical topics of early communication in online dating and friendship initiation are stronger in promoting liking than dislikes.

In the following studies, we set out to explore potential explanations for shared likes' greater potential to elicit liking. A straightforward explanation could be that people's likes are simply stronger than their dislikes. That is, people may feel quite strongly about a favorite musician, book, or dish, while they do not feel as strongly about a musician, book, or dish that they dislike. Therefore,

in Study 2, we aimed to replicate Study 1, and also asked participants to indicate how strongly they like or dislike the attitudes that they had generated.

In addition, we wanted to find out whether likes and dislikes also differ in their potential to reduce interpersonal liking, when another person does *not* share it. According to the similarity effect, when a person finds out that another person does not share their attitude, this results in reduced liking. Thus, while sharing attitudes breeds liking, not sharing attitudes, and therefore being dissimilar, breeds disliking (Rosenbaum, 1986). The question arises as to whether unshared likes are also more potent in *reducing* interpersonal liking compared to unshared dislikes. Study 2 therefore also asked participants to rate the likability of targets who dislike their likes and targets who like their dislikes.

5.4 Study 2: Shared and Unshared Likes and Dislikes – The Role of Attitude Strength

As in Study 1, participants generated two likes and two dislikes in eight attitude domains. In addition to rating how likable they would find a person who shares each of the likes and dislikes, participants also rated how likable they would find a person not sharing their likes and dislikes. As Table 5.1 illustrates, we are now looking at four different scenarios. So far, in Study 1, we only looked at shared attitudes. That is, the other person either *also liked* participants' likes or *also disliked* participants' dislikes. For Study 2, we added two scenarios of unshared attitudes. The other person could either *like* participants' *dislikes* or *dislike* participants' *likes*. Finally, participants were also asked to indicate how strong their likes and dislikes are, to test whether likes and dislikes differ in strength and whether this accounts for likes' stronger potential to elicit interpersonal liking.

5.4.1 Method

Participants and Design. Similar to Study 1, we aimed for a sample of 100 online participants, which provides sufficient power (> .90) to detect small-to-medium-sized effects ($\eta_p^2 = 0.02$) with alpha at the conventional 0.05 level in the present repeated-measures design (Cohen, 1988). Again, sample size was determined before any data analysis. MTurk returned observations from 102 participants (63 female, 39 male, mean age = 34.93). All participants were located in the U.S. and

received a $0.90 compensation. The design was similar to Study 1, except that Study 2 featured an additional within-subjects factor, which pertained to whether participants' likes and dislikes were shared or unshared by the target person.

Table 5.1

The Four Scenarios That Participants Had To Consider in Study 2, Illustrated From the Participants' Perspective

	The other person	
	Partner liking	**Partner disliking**
My likes	shared	unshared
My dislikes	unshared	shared

Procedure. The study used the Qualtrics software. The procedure was identical to Study 1 with two exceptions. First, due to the addition of targets who do not share participants' attitudes, participants provided twice as many likability ratings. That is, for each of their likes, participants rated the likability of a person who also likes what they like (shared like) and who dislikes what they like (unshared like). Likewise, for each dislike, they rated how likable they find a person who also dislikes what they dislike (shared dislike) and who likes what they dislike (unshared dislike). This resulted in 64 interpersonal likability ratings.

Second, to assess attitude strength, participants were presented with their likes and dislikes one by one in random order and indicated how much they like each like and how much they dislike each dislike (1 = not at all, 7 = very much).

5.4.2 Results

Interpersonal Liking. We conducted a 2 (attitude valence: like vs. dislike) by 2 (attitude similarity: shared vs. unshared) repeated-measures ANOVA with interpersonal liking as the

dependent variable. Unsurprisingly, a significant main effect of attitude similarity showed that participants expressed stronger interpersonal liking for targets with shared versus unshared attitudes, $F(1, 101) = 333.86$, $p < .001$, $\eta_p^2 = 0.77$, 95% CI = [0.70, 0.81]. The significant main effect of attitude valence showed that participants perceived target persons sharing or not sharing their likes as more likable than targets sharing or not sharing their dislikes, $F(1, 101) = 42.23$, $p < .001$, $\eta_p^2 = 0.30$, 95% CI = [0.18, 0.40].

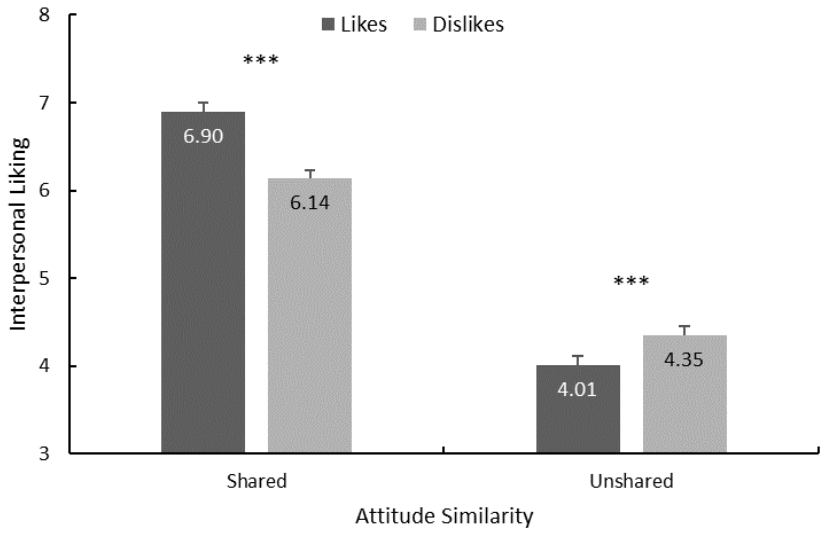
Crucially, there was also a significant interaction effect, $F(1, 101) = 106.56$, $p < .001$, $\eta_p^2 = 0.51$, 95% CI = [0.40, 0.60]. As illustrated in Figure 5.2's left panel, participants perceived targets who shared their likes as more likable than targets who shared their dislikes, $F(1, 101) = 137.19$, $p < .001$, $\eta_p^2 = 0.58$, 95% CI = [0.47, 0.65]. In addition, for unshared attitudes, participants perceived targets who disliked their likes as less likable than targets who liked their dislikes, $F(1, 101) = 33.14$, $p < .001$, $\eta_p^2 = 0.25$, 95% CI = [0.13, 0.35] (Figure 5.2's right panel). The results show the greater potential of likes for interpersonal liking as evident in the reduced liking due to attitude dissimilarity. Hence, shared likes create more interpersonal liking than shared dislikes, and unshared likes also create a stronger decrease in interpersonal liking than unshared dislikes.

To ensure that the effect generalizes across attitude domains, we conducted a mixed-model regression analysis in which domains and participants were treated as random factors (Judd et al., 2017), using the R package lme4 (Version 1.1.26; Bates et al., 2014). To set up this model, we first calculated a *liking potential* measure for participants' likes and dislikes. That is, we subtracted judged likability of a target not sharing a like or dislike from judged likability of a target sharing that like or dislike. By treating the resulting difference scores as a dependent variable in the regression model, we simplified the former attitude similarity by attitude valence interaction to an attitude valence main effect, which makes the following regression analyses more comprehensible. Larger difference scores indicate a stronger potential of the respective attitude to elicit liking, and smaller values indicate a weaker potential to elicit liking. We specified a model that predicted attitudes' potential to elicit liking, i.e., the likability difference, from the fixed effect attitude valence (1 = like, -1 = dislike)

and the two random effects participant and domain with random error components for intercepts and slopes. Confirming the ANOVA, this model found that attitude valence significantly predicted attitudes' potential to elicit liking, $b = 0.55$, $SE = 0.11$, $t(9.36) = 4.84$, $p < .001$, 95% CI = [0.33, 0.78].[5]

Figure 5.2

Likability of Target Persons Sharing Versus Not Sharing Participants' Likes and Dislikes in Study 2



Note. Mean likability ratings for target persons sharing vs. not sharing participants' likes and dislikes in Study 2. Error bars represent standard errors of the means.

*** $p < .001$.

Attitude Strength. Paired sample *t*-tests indicated that participants' likes were stronger than their dislikes, $M_{likes} = 6.18$ ($SD_{likes} = 0.50$) vs. $M_{dislikes} = 5.27$ ($SD_{dislikes} = 0.91$), $t(101) = 11.00$, $p < .001$, $d_z = 1.09$, 95% CI = [0.83, 1.35]. Thus, participants liked their likes more than they disliked their dislikes. Hence, likes' stronger potential to elicit liking as evident from the interaction between attitude valence and attitude similarity may result from likes constituting stronger attitudes.

[5] As a default, the lme4 package uses the Sattertwhaite approximation for testing the statistical significance of fixed effect terms in the calculation of linear mixed models. This results in fractional degrees of freedom.

To test whether attitude strength accounts for likes' stronger liking potential, we ran another mixed-effects regression model that added the fixed factor attitude strength to the basic model mentioned above. It again included the random factors domain and participant. Iterative model complexity testing suggested a model that included random participant intercepts and slopes for attitude strength and attitude valence, and random domain intercepts and slopes for attitude valence. This model found that when attitude strength was included as a predictor, attitude valence remained a significant predictor of attitudes' potential to create liking; yet, its effect was reduced by more than half, $b = 0.21$, $SE = 0.08$, $t(14.04) = 2.58$, $p = .022$, 95% CI = [0.05, 0.37]. Attitude strength itself strongly predicted attitudes' potential to elicit liking, $b = 1.15$, $SE = 0.06$, $t(99.81) = 18.52$, $p < .001$, 95% CI = [1.02, 1.27]. The model also found a significant interaction between attitude valence and strength, $b = 0.28$, $SE = 0.04$, $t(2880) = 7.46$, $p < .001$, 95% CI = [0.21, 0.36], suggesting that attitude strength more strongly predicts interpersonal liking among likes than among dislikes.

5.4.3 Discussion

Study 2 replicated the stronger potential of shared likes to elicit interpersonal liking compared to shared dislikes found in Study 1. Across a variety of attitude domains, participants found targets who shared their likes more likable than targets who shared their dislikes. In addition, Study 2 revealed that the stronger attraction potential of likes also extends to unshared attitudes. Specifically, targets who disliked participants' likes were perceived as *less* likable than targets who liked participants' dislikes. These results show that whether one likes another person is mainly determined by that person's attitude towards one's likes.

Study 2 also suggests that a potential explanation for likes' greater attraction potential is that people feel more strongly about their likes than about their dislikes. Across the eight attitude domains, participants consistently rated their likes as stronger than their dislikes. Regression analyses revealed that this difference in attitude strength accounted for more than half of likes' greater potential to elicit liking. While we cannot draw causal claims from this correlational analysis,

it seems plausible that part of likes' greater attraction potential reflects a general difference in likes' and dislikes' attitude strength.

Another factor that might further contribute to the asymmetry that we observed in the previous studies is a general preference for people expressing likes compared to people expressing dislikes (Folkes & Sears, 1977). In our design, target persons not sharing participants' likes or dislikes were always either a liker or a disliker. Consequently, while attitude dissimilarity reduces the likability of someone who likes one's dislikes, this person is still a liker, which may render that person not as unlikable as someone who dislikes one's likes. Thus, the reduced liking for persons not sharing participants' likes compared to their dislikes might also be due to people preferring others expressing a like (of one's dislike) compared to those expressing a dislike (of one's like). For shared attitudes, a liker advantage is also in line with our results.[6] In the following Study 3, we therefore aimed at an experimental test of a possible liker advantage.

5.5 Study 3: Fictional Likes and Dislikes – Revisiting the Liker Versus Disliker Effect

To find out whether a general preference for likers might contribute to our findings, we tried to replicate the basic liker-disliker effect (Folkes & Sears, 1977) in the present attitude domains. In order to remove any possible influence of perceivers' own attitudes towards target persons' likes and dislikes, we created fictional likes and dislikes for seven of the eight attitude domains (we dropped the countries domain, because creating fictional countries may have stirred suspicion in participants). Participants in Study 3 were asked to indicate how likable they would find a person who *likes* different fictional interests, and how likable they would find a person who *dislikes* different fictional interests. If a difference in the likability ratings is observed, this could only be due to the target person being a liker versus a disliker.

[6] To further illustrate this point, we reanalyzed the data with a 2 (participant valence: likes vs. dislikes) by 2 (other person valence: likes vs. dislikes) repeated-measures ANOVA with interpersonal liking as the dependent variable. In this design, the main effect of other person valence, $F(1, 101) = 106.56$, $p < .001$, $\eta_p^2 = 0.51$, 95% CI = [0.40, 0.60], shows that participants found others who expressed a like more likable than others who expressed a dislike. Note that this main effect is statistically equivalent to the interaction effect in the original ANOVA that we computed.

5.5.1 Method

Participants and Design. We again aimed for a sample of 100 participants, which provides sufficient power (>0.90) to detect small-to-medium-sized effects (d_z = 0.30) with alpha at the conventional 0.05 level in the present repeated-measures design (Cohen, 1988). We collected this sample of 100 U.S. participants online on MTurk and sample size was determined before any data analysis. Due to one case of double participation, our final sample included 99 participants (36 female, 63 male, mean age = 34.86) who received a $0.50 compensation.

The design was similar to Study 1, except that this time, we manipulated mere target valence (i.e., liker vs. disliker) within-participants. The stimulus pool contained eight fictional interests per attitude domain, resulting in a total of 56 fictional interests (see supplements). When generating these fictional interests, our goal was that they sounded like real interests in the sense that participants would believe that these interests actually existed. Participants saw one randomly drawn fictional interest per domain. The dependent variable was again perceived likability of target persons.

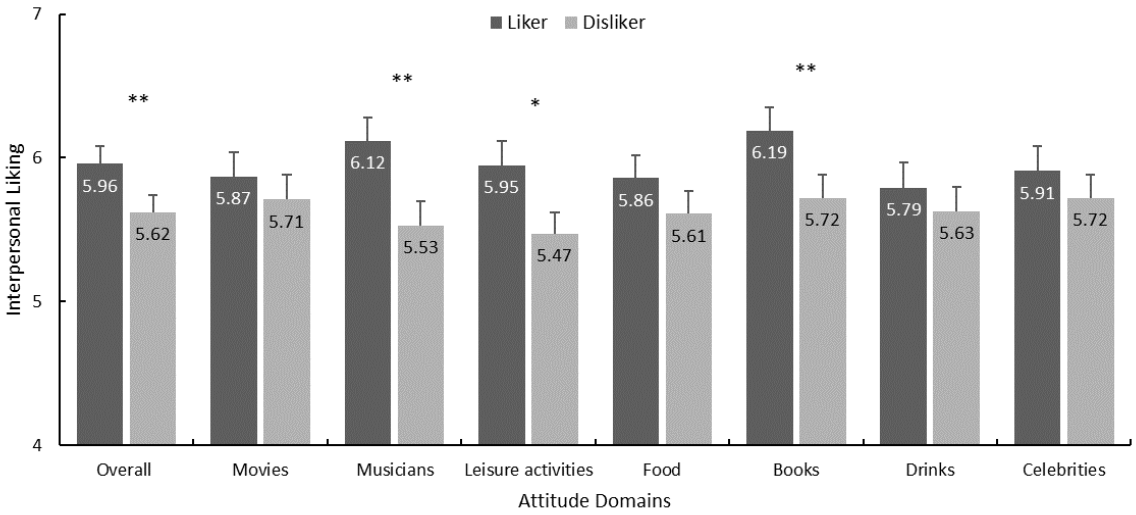
Procedure. The study used the Qualtrics software. The procedure was similar to Study 1 except that participants did not generate their own likes and dislikes in a first step. For each of the seven attitude domains, one out of eight fictional interests was randomly drawn. For this interest, participants were then asked to both imagine meeting a person who likes this fictional interest, and to imagine meeting a person who dislikes the interest. For both scenarios, participants were asked how likable they would find such a person. In total, this resulted in 14 interpersonal likability ratings per participant. The order of these 14 scenarios was randomized.

5.5.2 Results

We conducted paired sample *t*-tests to compare the mean likability ratings for likers versus dislikers, separately for each domain, as well as across all domains. Overall, participants found target persons who expressed to like a fictional interest more likable than persons who expressed to dislike a fictional interest, M_{liker} = 5.96 (SD_{liker} = 1.15) vs. $M_{disliker}$ = 5.62 ($SD_{disliker}$ = 1.15), $t(98) = 2.78$, $p = .006$, d_z = 0.29, 95% CI = [0.08, 0.50]. Figure 5.3 shows the results for all seven attitude domains.

Figure 5.3

Likability of Target Persons Expressing Likes Versus Dislikes in Study 3



Note. Mean likability ratings for target persons expressing a like (liker) vs. expressing a dislike (disliker) in seven attitude domains in Study 3. Error bars represent standard errors of the means. * $p < .05$. ** $p < .01$.

5.5.3 Discussion

We experimentally manipulated whether target persons in this study were likers or dislikers. Replicating Folkes and Sears' (1977) findings, participants showed a preference for likers relative to dislikers. This finding sets the ground for the assumption that a valence difference on the target side likely contributed to the liking asymmetry found in Studies 1 and 2.

In a final Study 4, we aimed to test whether likes would still exhibit a stronger potential for interpersonal liking than dislikes when controlling for the general liker advantage. To enable such a test, we combined the designs of Study 2 and Study 3. Specifically, we again asked participants to generate likes and dislikes and then asked them to rate the likability of target persons liking or disliking one of their likes/dislikes. Yet, in addition, each target was also described to like or dislike one of the fictional interests so that each target was always described to like one thing and to dislike

another thing. This should erase any influence of the general liker advantage as each target was now both a liker and a disliker.

While we again asked participants to indicate the strength of their likes and dislikes, we also tested another possible explanation for likes' stronger potential for liking, namely attitudes' self-revelation value. As anticipated in the introduction, previous research has shown that people usually agree on why they like something, while they are more likely to disagree about why they dislike something (Alves et al., 2017b; Gershoff et al., 2007). In this regard, positive attitudes are more informative than negative attitudes. If this is true, people may perceive likes as more revealing about themselves. Self-revelation, in turn, has been shown to determine attitudes' potential to create attraction (Laurenceau et al., 1998; Pronin et al., 2008). People naturally consider some of their attitudes to reveal more strongly who they really are than others, and these more revealing attitudes have a particularly strong attraction potential. Note that the perceived self-revelation value of an attitude is not the same as attitude strength. For example, a person can have a very strong like or dislike for a certain type of food, but she might not consider this attitude to reveal much about who she is. We will also address empirically that attitude strength and attitudes' self-revelation value measure something different (see below).

To test whether likes are more revealing than dislikes, we asked participants in Study 4 to rate how revealing they found each of their likes and dislikes to be regarding who they are. We then tested whether this self-revelation value contributed to the stronger attraction potential of likes.

5.6 Study 4: Shared and Unshared Likes and Dislikes – The Role of Attitudes' Self-Revelation Value

In Study 4, we tested whether likes' greater potential for interpersonal liking would prevail when we control for the general liker advantage. In addition, we tested whether attitude strength and attitudes' self-revelation value contribute to likes' greater attraction potential.

5.6.1 Method

Participants and Design. As before, we aimed for a sample of 100 online participants. This provides sufficient power (> .90) to detect small-to-medium-sized effects ($\eta_p^2 = 0.02$) with alpha at

the conventional 0.05 level in the present repeated-measures design (Cohen, 1988). MTurk returned observations from 101 participants (48 female, 52 male, 1 other; mean age = 39.18).[7] Sample size was again determined before any data analysis. Participants were all located in the U.S. and received a $2.50 compensation. The design was identical to Study 2 with two within-subject factors: attitude valence (like vs. dislike) and attitude similarity (shared vs. unshared). Different from Study 2, but similar to Study 3, target persons were now both likers and dislikers as they were also described to like/dislike one of the fictional attitude objects.

Procedure. The procedure was similar to Study 2. Participants rated the likability of a person who also likes what they like (shared like), dislikes what they like (unshared like), also dislikes what they dislike (shared dislike) and likes what they dislike (unshared dislike; see Table 5.1 for an illustration of all four cells). However, this time, target persons *liking* participants' likes and dislikes were also described to *dislike* a randomly chosen fictional interest in the same domain. Likewise, target persons *disliking* participants' likes and dislikes were also described to *like* a fictional interest in the same domain. The assessment of attitude strength was identical to Study 2. To assess attitudes' self-revelation value, we used three items (Chronbach's $\alpha = 0.85$) previously used by Pronin et al. (2008): “How much do you think liking [name of like]/ disliking [name of dislike] reveals about who you *really* are and what you are *really* like?” 1 = nothing, 7 = a lot; “If people learned that you like [name of like]/dislike [name of dislike], how well would they be able to understand who you are and what you are like?” 1 = not at all well, 7 = extremely well; “How accurate of a picture do you think liking [name of like]/disliking [name of dislike] provides of your true self?” 1 = not at all accurate, 7 = extremely accurate. Participants saw the three questions per listed attitude object

[7] All four studies used MTurk samples, which are sometimes criticized with regards to data quality. With regard to this, we wish to note that, first, there is evidence that MTurk samples yield similar psychometric standards as traditional subject pools (Buhrmester et al., 2011) and even superior data to other recruitment platforms (Litman et al., 2021). Second, we checked all data sets regarding plausibility of the responses. As Studies 1, 2, and 4 included open text responses, we checked them for meaningfulness and treated them as an indicator for the quality of our data. In Studies 1 and 2, we found no evidence for nonsense or robotic responses. We therefore consider our data quality to be good. In Study 4, we identified two participants who indicated some nonsense answers. However, excluding these two participants did not change any of the results.

together on one screen. The order of the presented attitude objects as well as the measurement order of attitude strength and attitudes' self-revelation value was randomized.

5.6.2 Results

Interpersonal Liking. We again conducted a 2 (attitude valence: like vs. dislike) by 2 (attitude similarity: shared vs. unshared) repeated-measures ANOVA. The analysis found a significant attitude similarity main effect, $F(1, 100) = 100.44$, $p < .001$, $\eta_p^2 = 0.50$, 95% CI = [0.38, 0.59], confirming that people liked others who shared their attitudes more than others who did not share their attitudes. There was also a significant main effect of attitude valence, $F(1, 100) = 16.66$, $p < .001$, $\eta_p^2 = 0.14$, 95% CI = [0.05, 0.25], indicating that participants perceived target persons sharing or not sharing their likes as more likable than targets sharing or not sharing their dislikes. Similar to Study 2, these main effects were qualified by a significant interaction effect, $F(1, 100) = 19.42$, $p < .001$, $\eta_p^2 = 0.16$, 95% CI = [0.07, 0.27], thereby replicating the stronger potential of likes in terms of interpersonal liking relative to dislikes even when controlling for the general liker advantage. However, this interaction effect was substantially smaller compared to Study 2 ($\eta_p^2 = .51$).[8] Simple effect tests revealed that likes elicited stronger interpersonal liking than dislikes only among shared attitudes, $F(1, 100) = 36.23$, $p < .001$, $\eta_p^2 = 0.27$, 95% CI = [0.15, 0.37], while unshared likes and dislikes did not differ regarding their influence on interpersonal liking, $F(1, 100) = 0.50$, $p = .480$, $\eta_p^2 = 0.01$, 95% CI = [0, 0.05].

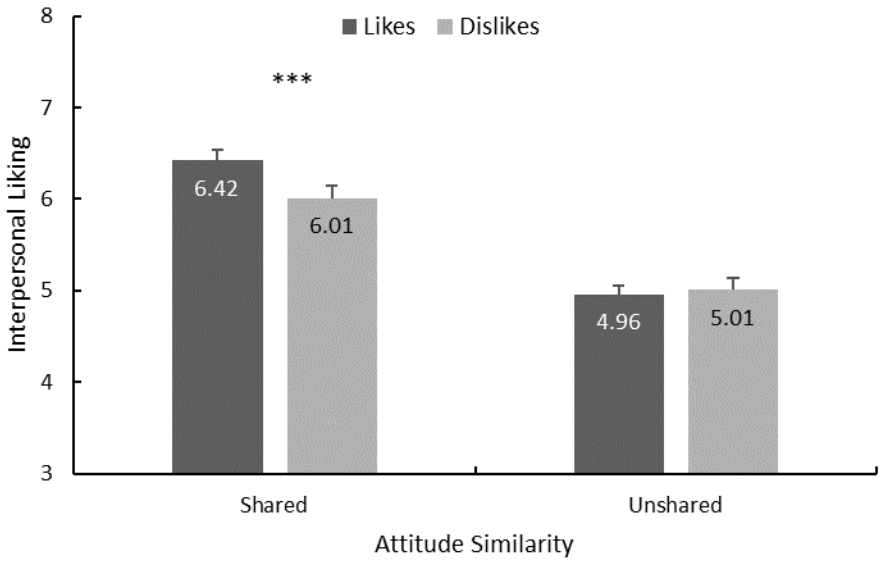
As illustrated in Figure 5.4's left side, participants liked target persons sharing their likes more than target persons sharing their dislikes, thereby replicating the greater potential of likes in terms of interpersonal attraction relative to dislikes among shared attitudes. However, among

[8] This was also reflected in the alternative 2 (participant valence: likes vs. dislikes) by 2 (other person valence: likes vs. dislikes) repeated-measures ANOVA with interpersonal liking as the dependent variable (see Study 2, Footnote 6). However, although the main effect of other person valence was reduced compared to Study 2, $F(1, 100) = 19.42$, $p < .001$, $\eta_p^2 = 0.16$, 95% CI = [0.07, 0.27], it was still significant. This shows that the effect is not just about whether the other person expresses a like or a dislike, because in Study 4, the other person was always both a liker and a disliker.

unshared attitudes, likes and disliked now had an equally strong effect on interpersonal liking, which was likely due to controlling for the general liker advantage.

Figure 5.4

Likability of Target Persons Sharing Versus Not Sharing Participants' Likes and Dislikes in Study 4



Note. Mean likability ratings for target persons sharing vs. not sharing participants' likes and dislikes in Study 4. Error bars represent standard errors of the means.

*** $p < .001$.

We also conducted a mixed-model regression analysis to ensure generalizability across attitude domains. Similar to Study 2, we first specified a basic regression model predicting attitudes' potential to elicit liking from the fixed effect attitude valence with attitude domain and participant as random factors with random error components for intercepts and slopes. Attitude valence significantly predicted attitudes' attraction potential in this model, $b = 0.23$, $SE = 0.08$, $t(11.30) = 2.91$, $p = .014$, 95% CI = [0.08, 0.39].

Attitude Strength and Attitudes' Self-Revelation Value. Next, we examined the role of attitude strength and attitudes' self-revelation value for likes' stronger attraction potential in the

present study. Replicating Study 2, participants' likes were stronger than their dislikes, M_{likes} = 6.12 (SD_{likes} = 0.81) vs. $M_{dislikes}$ = 5.53 ($SD_{dislikes}$ = 1.03), $t(100) = 5.98$, $p < .001$, $d_z = 0.59$, 95% CI = [0.37, 0.81]. Also, participants perceived their likes as more revealing than their dislikes, M_{likes} = 4.20 (SD_{likes} = 1.56) vs. $M_{dislikes}$ = 3.59 ($SD_{dislikes}$ = 1.54), $t(100) = 7.09$, $p < .001$, $d_z = 0.71$, 95% CI = [0.56, 0.86]. Thus, likes' stronger potential to elicit liking may be explained by three aspects: first, a general liker preference; second, likes are stronger than dislikes; and third, likes are more revealing of a person's true self than dislikes.

To test this, we ran another mixed-effects regression model that added the fixed factors attitude strength and attitudes' self-revelation value to the basic model. It again included the random factors domain and participant. Iterative model complexity testing suggested a model including random intercepts and slopes for attitude valence for domain and participants. When including attitude strength and attitudes' self-revelation value, attitude valence was no longer a significant predictor of attitudes' potential to elicit liking, b = 0.04, SE = 0.06, $t(16.22) = 0.59$, $p = .565$, 95% CI = [-0.09, 0.16]. Yet, attitude strength, b = 0.40, SE = 0.04, $t(2567.11) = 9.13$, $p < .001$, 95% CI = [0.32, 0.49], and attitudes' self-revelation value, b = 0.68, SE = 0.05, $t(2405.72) = 13.13$, $p < .001$, 95% CI = [0.58, 0.78], strongly predicted attitudes' attraction potential. Tests to see if the data met the assumption of collinearity indicated that multicollinearity of the predictors attitude strength (VIF = 1.24) and attitudes' self-revelation value (VIF = 1.17) was not a concern. This indicates that both serve as independent predictors and indeed measure something different.[9]

5.6.3 Discussion

Study 4 showed that likes' stronger potential to elicit interpersonal liking prevailed even when controlling for a general liker advantage as observed in Study 3. However, the effect was smaller in size and only present for shared but not for unshared attitudes. This suggests that a general preference for people expressing a like compared to people expressing a dislike might have

[9] Additionally, we conducted mediation analyses for Studies 2 and 4. Results support the same conclusion as the mixed models and can be found in the supplemental materials on OSF.

contributed to the greater effect size in Study 2. We do not have an explanation for why the difference between likes and dislikes fully disappeared among unshared attitudes other than that this effect was weaker than among shared attitudes to begin with. The remaining stronger attraction potential of shared likes versus dislikes was then accounted for in a regression model that included attitude strength and attitudes' self-revelation value as additional predictors. Both of these variables strongly predicted attitudes' potential to elicit liking and left no unexplained effect of attitude valence.

In sum, Study 4 in combination with our previous studies suggest three explanations for the asymmetry of likes and dislikes in interpersonal liking. First and most basically, people prefer others who like things over others who dislike things. Second, likes are stronger than dislikes and people value it more when others share their strong compared to their weaker attitudes. Third, likes are more revealing of who a person really is, and more revealing attitudes are more important to share with others than less revealing ones.

5.7 General Discussion

The present research provides new insights into the effect of perceived similarity on interpersonal liking. We focused on initial liking in contexts where people have minimal information about another person. This mirrors the standard situation of first encounters on online dating or social media platforms and thereby represents a relevant process of getting to know each other in today's society. Moreover, we studied perceived rather than actual similarity, as past research demonstrated that, especially for initial liking, it is often more important to perceive somebody as similar rather than having actual similarities (Luo & Zhang, 2009; Tidwell et al., 2013).

First and foremost, we found that people find others who share their attitudes more likable than others who do not share them. This is not at all surprising as this similarity effect is one of the most robust findings in all social sciences (Berger, 1973). Our work however revealed that not all attitudes are created equal with regards to their potential to elicit liking. Across several attitude domains, we found that people's positive attitudes (i.e., their likes) are more important for

interpersonal liking than people's negative attitudes (i.e., their dislikes). On the one hand, participants perceived someone who shared their likes as more likable compared to someone who shared their dislikes. On the other hand, they perceived someone who did not share their likes as less likable compared to someone who did not share their dislikes. Thus, when it comes to initial interpersonal liking in contexts where few information is available, likes matter more than dislikes.

Studies 2 to 4 identified three possible explanations for this asymmetry: people prefer likers over dislikers, likes are stronger than dislikes, and likes are more self-revealing. First, people liked others who were described to hold a positive attitude more than those who held a negative attitude. In a first step, we replicated this general liker advantage (Folkes & Sears, 1977) for our interest domains and design (Study 3). In a second step, we counterbalanced target person valence and made targets both a liker and a disliker, thereby controlling for the general liker advantage (Study 4). This resulted in a reduced effect size compared to Study 2. While the observed liker advantage in Study 3 and the difference in effect sizes between Studies 2 and 4 suggest that the liker advantage accounts for part of the effect, the fact that we control for it in Study 4 and the critical effect still shows means that other factors, i.e., attitude strength and attitudes' self-revealing value, play a key part as well.

Indeed, second, we found that people's likes are stronger than their dislikes. Our participants indicated that they more strongly liked a liked musician, dish, or movie, than they disliked a disliked musician, dish, or movie. This difference in attitude strength accounted for a significant part of likes' stronger potential to elicit liking.

Third, participants found their likes to be more revealing of their true self. Study 4 found that when we accounted for attitude strength and attitudes' self-revelation value in a regression, there remained no significant effect of attitude valence on the attraction potential. It seems that people's positive attitudes more strongly define who they are than their negative attitudes. Someone who shares a person's positive attitude may then be perceived as more similar to that person's true self. This should naturally influence the resulting interpersonal liking to a larger extent than sharing negative attitudes that do not tell much about who someone really is. The higher self-revelation

value is in line with research showing that positive attitudes are more informative and less ambiguous than negative attitudes, as there are only a few reasons to like something but many reasons to dislike something (Alves et al., 2017b; Gershoff et al., 2007). Alternatively, the stronger revelation of likes may also reflect people's greater personal investment in their likes. That is, people may spend more of their time enjoying the things they like than avoiding the things they dislike. Consequently, other people's reactions towards one's likes may then be interpreted as a judgment of the attitude holders themselves.

While the current findings show that likes have a stronger potential to elicit liking, previous research claimed the opposite. According to that research, sharing a negative attitude about a person elicits stronger interpersonal attraction than sharing a positive attitude about a person, as long as attitudes are not strong (Bosson et al., 2006; Weaver & Bosson, 2011). These research findings even found their way into the industry in the form of a dating app called *Hater*, which matches users based on mutual dislikes. How can these conflicting findings be reconciled? The most straightforward answer is that the previously drawn conclusion regarding a stronger attraction potential of negative attitudes only applied to person-related attitudes that are not strong. Our stimuli, on the other hand, were sampled from various attitude domains, and they were generated by participants themselves, and can therefore be expected to reflect rather strong attitudes. This was also supported by participants' attitude strength ratings which were all well-above the scale midpoint. That the differential impact of likes and dislikes on interpersonal attraction may in fact depend on attitude strength was confirmed by post-hoc analyses. When we conducted a mixed-effects regression model that predicted likability difference (i.e., our measure of attraction potential) from attitude valence, attitude strength and their interaction, we found a significant interaction, $b = 0.24$, $t(392.10)$, $p < .001$. This indicated that the stronger attraction potential of likes, i.e., the likability difference between likes and dislikes, increased with greater attitude strength. It therefore remains possible that among weak attitudes, which our stimuli most likely did not include, shared dislikes are stronger than shared likes. This possibility may be investigated in future research.

5.7.1 Limitations and Open Questions

One possible limitation is that we cannot rule out that there are other attitude domains in which negative attitudes are stronger than positive ones. However, among the eight attitude domains that we used and that were sampled to represent typical topics of early interpersonal communication and online dating, likes were clearly stronger than dislikes. In future research, it could be interesting to examine whether the pattern differs for other domains such as political beliefs.

Of course, our findings also do not imply that shared likes bond stronger than shared dislikes in all social contexts. For example, recent research has found that the similarity effect in interpersonal attraction is stronger for rare shared attitudes than for common shared attitudes (Alves, 2018; Vélez et al., 2019). Accordingly, people are especially attracted to others who share those attitudes that are not shared by many other people. This finding reflects the more general phenomenon that infrequent attributes are weighted more strongly than frequent attributes in impression formation (Fiske, 1980). Sharing a rare dislike may therefore still lead to a strong bonding. For example, two individuals who share a rare dislike for sunny weather may like each other more than two people who share the common like for sunny weather.

Past research has found that not only does perceived similarity increase liking but liking also increases perceived similarity (Collisson & Howell, 2014; Morry, 2005). Possibly, this reversed causal relationship between liking and perceived similarity may also differ for positive and negative attitudes. That is, we may assume that a likable person is especially likely to share our positive attitudes. An intriguing implication from this hypothesis that could be tested by future research is that people may generally expect likable people to like many things.

Finally, the present work is also limited to first impressions and does not include examinations of real interactions between people. There is indeed research showing that people's initially stated mate preferences do not match up well with their actual mate choices (e.g., Eastwick & Finkel, 2008; Joel et al., 2014) and that it is challenging to predict actual attraction or initial

romantic desire before two people meet (Joel et al., 2017). However, first impressions are crucial because they lay the foundation for whether there will be further interactions between people to begin with (Denrell, 2005). This becomes even more relevant considering that more and more friendships and romantic relationships are initiated online where initial liking is often determined based on very limited information. Extending the present findings, future research could examine whether people's likes are also a stronger determinant of interpersonal liking in real world interactions. For this purpose, future research could for example use an approach similar to Sunnafrank and Miller (1981), who introduced an interaction dimension to Byrne's bogus stranger similarity paradigm.

5.7.2 Implications

First, our work contributes to the literature on attitude formation and to the understanding of what determines whether people find some individuals more likable than others. Therefore, it provides additional answers to one of the most central topics in social psychology (Allport, 1935; Vogel & Wänke, 2016). Specifically, we show that people do not weigh the information that another person shares their likes equally to the information that another person shares their dislikes. During the process of forming an attitude towards a newly acquainted other person (e.g., a potential dating partner) in contexts where minimal information about this other person's attributes is available, people seem to weigh their positive attributes, i.e., their likes, more than their negative attributes, i.e., their dislikes. Our findings thereby support the notion that the liking for a person, group, or object is more strongly determined by some attributes than by others (e.g., Hogarth & Einhorn, 1992).[10]

Second, our findings have practical implications for the initiation of friendships and intimate relationships. We can expect that when two people get to know each other, interpersonal liking is

[10] Note that we use the terms “likability” and “interpersonal liking” synonymously. In our studies, we did not generally ask participants to indicate how likable *people* will find the other person sharing or not sharing likes. Instead, we explicitly asked “how likable would *you* find this person”. Therefore, we do not consider perceived “likability” to measure a different and more general construct than interpersonal liking. This use of terms is also in line with earlier research on interpersonal liking in this domain (e.g., Alves, 2018).

strongly determined by whether or not they share their positive attitudes. Talking about each other's likes is important because it not only creates a positive atmosphere, but it also ensures that the conversation addresses attitudes that are meaningful to the dating partners or potential friends, and attitudes that have a strong attraction potential. An additional beneficial interpersonal effect can be expected to result from the mere fact that people who express their likes are perceived as likable themselves and as more likable than people who express their dislikes.

The present studies also suggest that algorithms that match users on online dating and other social media platforms should prioritize users' likes over their dislikes. Attempts to shift the focus onto users' negative attitudes (e.g., *Hater*) will most likely result in fewer relationship formations.

5.8 Conclusion

People like others who share their attitudes. However, not all attitudes are created equal when it comes to their potential to elicit liking. Positive attitudes have a stronger potential to create liking than negative attitudes. Initial interpersonal liking is therefore primarily guided by people's positive attitudes. We suggest that this asymmetry is due to a general liker advantage and likes being stronger and more self-revealing than dislikes.

Open Practices

Data, a codebook including all relevant variables and how they were measured and computed as well as materials and analysis codes for all four studies are available on OSF (https://osf.io/va6su/?view_only=b64 2c56c18b5485b8df76acf137f8ee0).

Chapter 6: Inferred Knowledge From Positive Versus Negative Attitudes

In the paper presented in the previous chapter, we identified attitudes' self-revelation value as one possible explanation for the higher importance of shared positive compared to shared negative attitudes for interpersonal liking. In the manuscript presented in the present chapter, we build on that finding and suggest a cognitive-ecological explanation for why people perceive positive attitudes (i.e., likes) as more revealing than negative attitudes (i.e., dislikes). From the higher diversity of negative information, as suggested by the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019), it follows that the reasons underlying people's negative attitudes can be manifold, whereas the amount of possible reasons underlying people's positive attitudes is more limited. Knowing what a person likes should, therefore, provide a clearer picture of that person. Knowing what a person dislikes does not allow clear inferences about the specific underlying reasons. As a result, people's positive attitudes should be more informative. This chapter presents how we tested the prediction that people assume to know more about others if they have information about what these others like versus what they dislike.

This chapter is based on the following article:

Zorn, T. J., Unkelbach, C., Mata, A., & Alves, H. (2024). *Tell me what you like, and I will tell you who you are – Inferences about people based on their positive and negative attitudes* [Manuscript submitted for publication]. Social Cognition Center Cologne, University of Cologne.

Please note that certain modifications were made to the headings, citation style, and formatting to align with the layout of this dissertation. No changes were made to the content of the article.

Tell Me What You Like, and I Will Tell You Who You Are – Inferences About People Based on Their Positive and Negative Attitudes

Abstract

As negativity is more diverse than positivity, there are also more different reasons why someone dislikes something than why someone likes something. From this asymmetry, we derived the hypothesis that positive relative to negative attitudes are perceived as more informative and revealing about the person who holds those attitudes. In five studies, we confirmed that people believe they have more knowledge about a person after learning what that person likes rather than dislikes. The effect generalized to various attitude domains, and was not caused by attitude frequency or by perceivers' own attitudes. Instead, participants found dislikes more ambiguous than likes regarding their underlying reasons, which statistically accounted for likes' higher perceived informativeness. These findings help to explain why shared likes lead to stronger interpersonal attraction than shared dislikes, and they have implications for friendship and relationship initiation as well as dating app users.

Keywords: attitudes, evaluative information ecology, valence asymmetries, attraction, impression formation

6.1 Introduction

People quickly form impressions based on limited information in their daily interactions, especially in online dating scenarios. One important source of information is the attitudes of a target person (i.e., their likes and dislikes). Perceivers can compare these attitudes with their own attitudes and typically like target persons who share their own attitudes (i.e., *similarity effect*; e.g., Montoya & Horton, 2013). Recent research has found that people's positive attitudes (i.e., their likes) are more potent in interpersonal attraction than their negative attitudes (i.e., their dislikes; Zorn et al., 2022). Specifically, people more strongly like others who share their likes than others who share their dislikes, while not sharing one's likes is particularly detrimental to interpersonal attraction. Zorn et al. (2022) also found that people consider a person's likes more revealing than a person's dislikes, which partly accounted for likes' greater potency in interpersonal attraction.

In the present work, we aim to explain why a person's likes are more revealing about this person than his or her dislikes. The greater potency of positive information seemingly contradicts the notion that "bad is stronger than good" (e.g., Baumeister et al., 2001; Fiske, 1980; Kanouse & Hanson, 1972). However, the greater potency of likes vs. dislikes does follow from the Evaluative Information Ecology (EvIE) model (e.g., Alves et al., 2017b; Unkelbach et al., 2019). It assumes that negativity is more diverse than positivity. Consequently, there are more potential reasons to dislike something or someone than to like them (see also Gershoff et al., 2007). Thereby, people's positive attitudes are more informative because there is less ambiguity in the reasons for one's likes than one's dislikes. Consequently, perceivers may believe they know someone better after learning about their likes. In the present studies, we tested this potential explanation for the higher informativeness and revelation value of people's positive attitudes.

6.1.1 Informativeness and Impact of Positive and Negative Attitudes

People like others who share their characteristics, particularly their attitudes (e.g., Byrne, 1961; Montoya & Horton, 2013; Tan & Singh, 1995; Stevens et al., 1990). This *similarity effect* has been described as "one of the most robust relationships in all of the behavioral sciences" (Berger,

1973, p. 281). As stated above, Zorn et al. (2022) found a valence asymmetry in this similarity effect. Shared positive attitudes (i.e., likes) elicit stronger interpersonal attraction than shared negative attitudes (i.e., dislikes). Moreover, positive attitudes were perceived to be more revealing than negative attitudes, which partially accounted for the effect on attraction.

Hence, knowing positive attitudes seem to be more potent than negative attitudes in interpersonal attraction. This is somewhat surprising given the extensive empirical research that has found a dominance of negative over positive information in impression formation (Baumeister et al., 2001; Rozin & Royzman, 2001). For example, negative compared to positive traits and behaviors have a stronger impact on the overall perceived likability of a person (Anderson, 1965; Feldman, 1966; Skowronski & Carlston, 1987). Fiske (1980) explained this based on the higher informativeness of negative behaviors resulting from their extremity or rareness. A rare attribute is more informative than a common attribute as it separates the target from a larger part of the population (see also Alves, 2018). Based on this "bad is stronger than good" perspective (Baumeister et al., 2001), one may expect people's dislikes to be more revealing than their likes. Adding to this, assuming that people like most of the things they encounter (Alves et al., 2017a; Unkelbach et al., 2020) and mostly talk about what they like (e.g., Dodds et al., 2015) would make people who reveal what they dislike a rare occurrence. In line with Fiske (1980), this adds to the idea that perceivers may consider people's dislikes more informative. However, the finding that positive and not negative attitudes are more potent and revealing in interpersonal attraction is compatible with the Evaluative Information Ecology (EvIE) model introduced by Unkelbach et al. (2019), which we will discuss in the following.

6.1.2 The Great Diversity of Negative Attitudes

The EvIE model (Unkelbach et al., 2019) claims that negative stimuli, attitudes, behaviors, attributes, emotions, and so forth, are more diverse and, therefore, less similar to each other than positive ones (see also Alves et al., 2016; 2017b; 2018; Koch, Alves, et al., 2016; Unkelbach et al., 2008, 2020). While there are many ways in which a stimulus can be negative, the ways in which a stimulus can be positive are rather limited. For example, desirable stimuli such as attractive faces,

likable personalities, or enjoyable life events are more like one another than their negative counterparts (e.g., Alves et al., 2016; Langlois & Roggman, 1990; Leising et al., 2013; Koch, Imhoff, et al., 2016).

One may derive negativity's greater diversity from the *range principle* (Alves et al., 2017b) and the *Anna Karenina principle* (Diamond, 1997; Moore, 2001). The range principle proposes that for most continuous attribute dimensions, there is a "sweet spot" of positive states that is surrounded by "too little" and "too much" margins of the distribution. These two states are the negative extremes and the moderate part of the dimension is the positive state (Alves et al., 2017b; Grant & Schwartz, 2011; Koch, Alves, et al., 2016). For example, only a small temperature range enables humans, animals, or plants to live and is considered "good". The same applies to human attributes such as height, talkativeness, amount of eye contact, or personality traits (Carter et al., 2018).

The Anna Karenina principle (e.g., Diamond, 1997) states that in order for an object to be considered positive, multiple desirable underlying features have to be simultaneously present (i.e., conjunction), while even a single undesirable feature may render the whole object negative (i.e., disjunction). A similar idea is expressed by the Liebig Law of the Minimum, which states that the worst factor determines the situation for an organism and can be observed in various domains, including economic systems, medicine, or climate systems (Gorban et al., 2010).

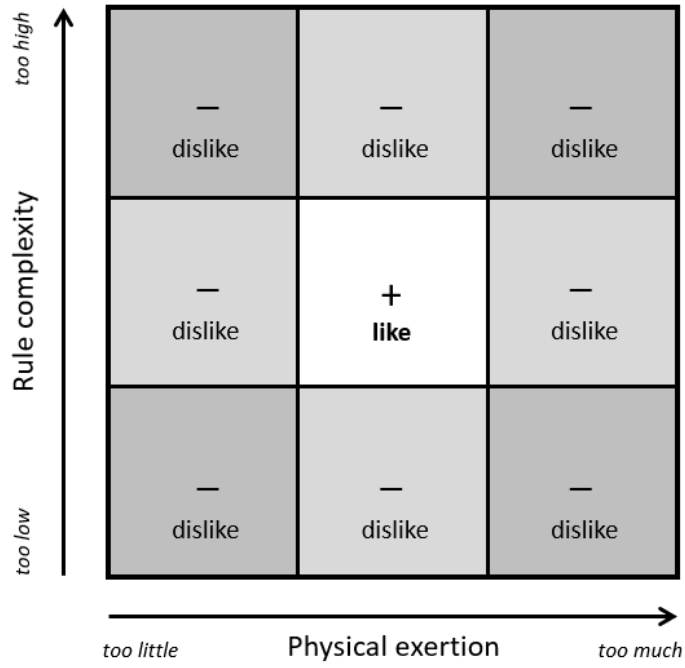
The range principle and the Anna Karenina principles both imply that negative things, such as objects, persons, groups, attributes, behaviors, or emotions, are more diverse than positive ones. Crucially and most relevant to the present work, they also imply that there are usually more possible reasons to dislike something than there are possible reasons to like something. This can be illustrated with a simple example (see Figure 6.1).

Let us consider two attributes that may be relevant to deciding whether to like or dislike the sport tennis ("physical exertion" and "rule complexity"). The range principle assumes that for any individual, a sports game can have an optimal range of physical exertion and rule complexity, while

on both dimensions, a game can have “too little” or “too much” of them. In this case, there is only one reason for someone to like tennis (desirable physical exertion and rule complexity). At the same time, there are four distinct reasons to dislike tennis resulting from the 2x2 combinations of undesirable ranges (see dark grey squares in Figure 6.1). The Anna Karenina principle further amplifies the diversity of negativity. If we assume that a person only likes tennis if physical exertion *and* rule complexity are in the desirable range (see white square in Figure 6.1), while a person dislikes tennis when it lies in any of the undesirable ranges, the number of possible reasons to dislike tennis increases to eight (see all grey squares in Figure 6.1).

Figure 6.1

Two Dimensions on Which People Could Classify Whether To Like or To Dislike Tennis



Note. Illustration of the range and the Anna Karenina principle and their implications for the higher diversity of negative compared to positive states. We use physical exertion and rule complexity as two example dimensions on which people could classify whether to like or to dislike to play tennis.

Note that the range principle and the Anna Karenina principle also predict that people who like tennis like it for similar reasons, while people who dislike tennis may dislike it for different reasons, a prediction that was empirically confirmed by Gershoff et al. (2007). Likewise, Leising et al. (2013) found that people who like a target person (public figures; e.g., Madonna) produce highly similar personality profiles of that target person, while people who dislike the target produce more diverse personality profiles.

6.1.3 Likes are More Informative Than Dislikes

The example illustrated in Figure 6.1 also shows why positive attitudes can be expected to be more informative than negative attitudes. If a perceiver learns that somebody likes tennis, one knows that tennis lies within that person's desirable range of physical exertion and rule complexity. However, if somebody dislikes tennis, one cannot make similarly informative inferences about that person. Crucial for similarity-based interpersonal attraction is the consequence that if Person A likes tennis and Person B also likes tennis, they can infer a greater similarity between them (as they should all be in the preference range of the Figure 6.1's white square). Conversely, two people who dislike tennis have all the eight grey squares in Figure 6.1 at their disposal, which makes them probabilistically less similar.

If one accepts this argument, likes must be more informative than dislikes, and shared likes should lead to greater interpersonal attraction. While the latter prediction has already been confirmed by Zorn et al. (2022), the former prediction remains to be empirically tested by the present work.

6.2 The Present Work

In five studies, we tested the hypothesis that people assume they know others better who express a like than a dislike and whether this can be explained by the greater certainty regarding the underlying reasons for liking vs. disliking. To be precise, we asked participants how well they think they could anticipate the target person's attitudes, the person's personality, and how well they may anticipate who this person is.

Study 1 established the basic effect and presented participants with different attitude objects from various domains (e.g., movies, leisure activities, school subjects, etc.) and asked them to imagine they would meet a person who either liked or disliked the respective attitude object. Participants then rated how well they thought they would know the target persons' attitudes and their personalities in general based on their likes or dislikes. Study 2 replicated this effect and ruled out that it could be explained by the perceived frequency of likes and dislikes. Study 3 then ruled out that participants believed likes to be more informative because they themselves were more likely to share likes compared to dislikes. Studies 4 and 5 tested our explanation that dislikes are more ambiguous than likes regarding their underlying reasons (see Gershoff et al., 2007) and that this can account for likes' greater perceived informativeness, which was empirically confirmed.

6.3 Transparency and Openness

We preregistered all studies. We report all measures, data exclusions, and manipulations in the five studies. All reported analyses were preregistered unless otherwise stated. Materials, data, preregistrations, and analysis code are available on OSF (https://osf.io/f8nme/?view_only=f92fd9cca28b4cb4a46c5339122721d0). All studies used the Qualtrics software and data was analyzed using R, version 4.3.3 (R Core Team, 2024).

6.4 Study 1: Knowledge Based on Likes and Dislikes

In Study 1, participants learned that another person likes or dislikes something, for example, a movie. Based on this information, they indicated how well they thought they could anticipate what another person is like concerning their attitudes and personality. We predicted that people believe they know more about a person after learning what that person likes versus dislikes. The preregistration is available at https://aspredicted.org/LPK_R3C.

6.4.1 Method

Materials. We created a stimulus pool of 16 attitude domains (e.g., movies, TV genres, musicians, actors, etc.). Each domain contained 20 exemplars (e.g., the movie Harry Potter, the TV

genre Documentary, the musician Harry Styles, the actor Brad Pitt, etc.). The materials on OSF provide the full list of domains and exemplars.

Participants and Design. We aimed for a sample of 100 UK-based participants, which provided sufficient statistical power (> .90) to detect small-to-medium-sized effects (d_z = 0.30) with alpha at the conventional 0.05 level in the present repeated-measures design (Cohen, 1992) as estimated by G*Power (Faul et al., 2007). We collected data on the Prolific Academic online platform, which returned observations from 98 participants (24 female, 73 male, 1 prefer not to say, mean age = 39.63). They received a £0.40 compensation. According to the sensitivity power analysis, this final sample of 98 participants provided 80% power to detect an effect size of d_z = 0.25 or greater in a paired sample *t*-test with alpha = 0.05 (estimated by G*Power; Faul et al., 2007).

We varied attitude valence as the independent variable within participants, that is, whether another person likes versus dislikes something. We randomly drew eight domains for each participant with two attitude objects from each domain. Thus, each participant had to imagine 16 scenarios of other people liking or disliking something. The primary dependent variable was anticipated knowledge about another person based on their likes or dislikes. We asked three questions to assess this knowledge and computed a composite knowledge score by calculating the mean of all three questions.

Procedure. The study first presented instructions and an informed consent form about participants' right to quit the study at any point and ensured anonymous and voluntary participation.

For each of the 16 randomly drawn domain exemplars, participants should imagine they meet a person and learn that this person likes [dislikes] the (e.g.,) movie [TV genre, musician, actor, …] "X", with one exemplar from the respective domain randomly inserted for X (e.g., "Avatar" as an exemplar for a movie). Instructions told participants that if they did not know this movie, they would be redirected to the next like [dislike]. If they knew this movie, they would be asked a few questions concerning a person liking [disliking] it on the following page. Thus, we first assessed whether participants knew the respective exemplar (yes vs. no). Three knowledge questions only appeared if

participants chose “yes”. If participants chose “no”, they were redirected to the next scenario. On three 7-point Likert scales, we assessed the primary dependent variable: "How well do you think you could anticipate this person’s attitudes? How well do you think you could anticipate this person’s personality? How well do you think you could anticipate who this person is?” (1 = not at all, 7 = very well). We treated the mean of the three responses as our composite knowledge score.

Participants saw eight scenarios in which another person liked something and eight scenarios in which another person disliked something. This produced eight composite knowledge scores per participant for likes and eight for dislikes.

In the end, the study queried demographical questions. Participants received a code to claim their compensation via Prolific. We deidentified all collected responses and only stored anonymous data.

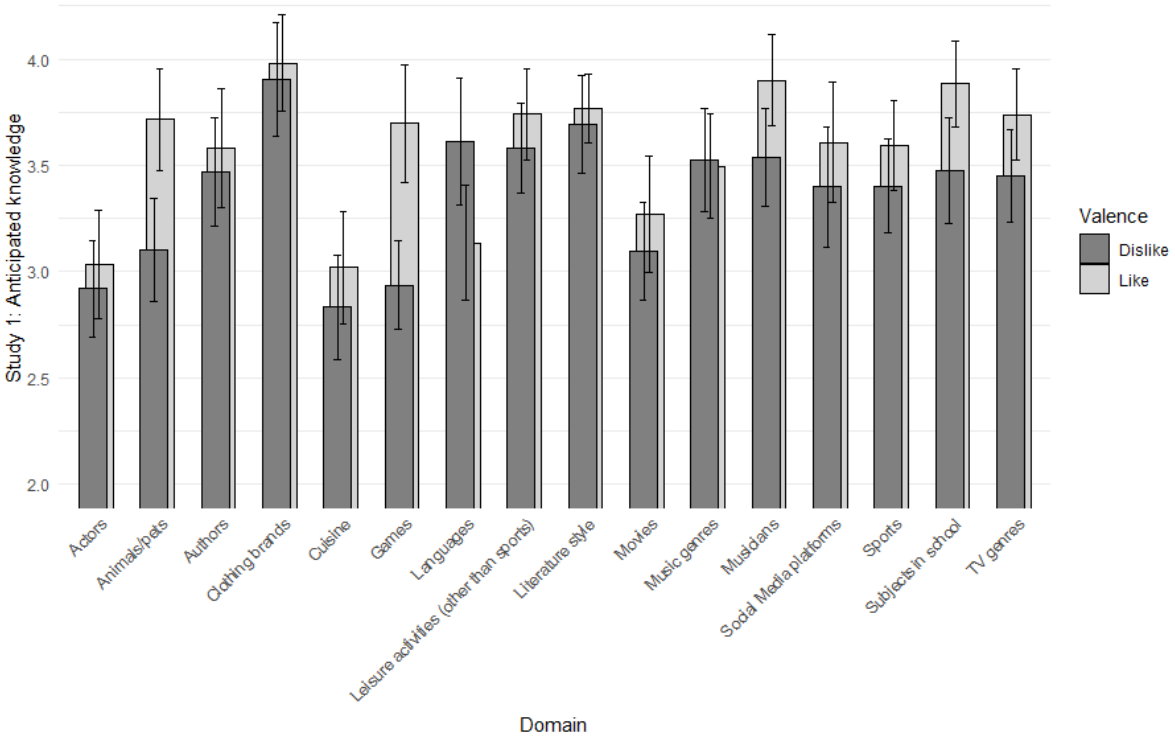
6.4.2 Results

We first calculated the composite knowledge scores as the mean of the three knowledge questions for each like and dislike of each participant. Cronbach's Alpha to assess the internal consistency of the three knowledge questions was $\alpha = 0.95$ both for likes and for dislikes across domains, indicating high internal consistency. Figure 6.2 shows the means and standard errors for all domains.

Then, we ran a paired sample *t*-tests to check whether likes and dislikes differed in their knowledge scores. Note that this *t*-test was not preregistered, but we report it here to be consistent with the preregistered analyses of the following studies. Participants indicated having more knowledge about the target person when they knew what this person liked, $M_{\text{like}} = 3.60$ ($SD_{\text{like}} = 1.23$), rather than disliked, $M_{\text{dislike}} = 3.42$ ($SD_{\text{dislike}} = 1.22$), $t(97) = 2.87$, $p = .005$, 95% CI = [0.05, 0.30], $d_z = 0.30$ (see Figure 6.3). Figure 6.3 shows the overall means for likes and dislikes across domains (white circle within box plot) as well as the first quartile, third quartile, and the median.

Figure 6.2

Anticipated Knowledge Based on Likes Versus Dislikes per Domain in Study 1



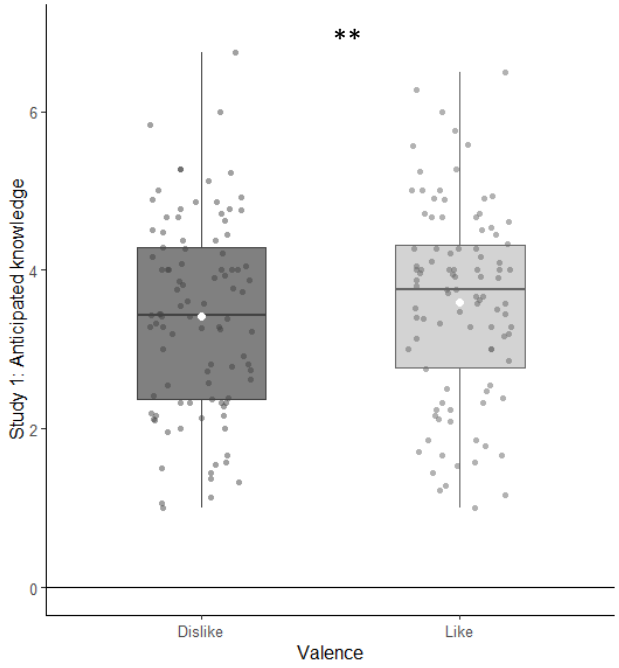
Note. Anticipated knowledge about other people who reveal a like versus a dislike of 16 domains in Study 1. Anticipated knowledge ranged from 1 to 7 with higher values indicating more anticipated knowledge. The error bars indicate the standard errors of the mean.

We then conducted a mixed-model regression analysis in which participants and domains were treated as random factors (Judd et al., 2017). We specified a model that predicted the composite knowledge score from the fixed effect attitude valence (1 = like, -1 = dislike). We strived for the most complex model regarding the two random factors, including all possible random error components. However, this model had a singular fit, so we stepwise-reduced model complexity. The final model included random intercepts for the domain and participants. As hypothesized, attitude valence significantly predicted the knowledge score in this model, $b = 0.10$, $SE = 0.03$, $t(1121) = 3.57$, $p < .001$, 95% CI = [0.04, 0.15]. Participants thought they could better anticipate what another person is like when they knew what this person liked than if they knew what this person disliked. As

illustrated in Figure 6.2, this effect was evident in nearly all domains. There was no difference in the music genre domain and a reversed effect emerged in the language domain. Please note that we attribute these two exceptions to chance, as they did not show consistently throughout all our studies.

Figure 6.3

Anticipated Knowledge Based on Likes Versus Dislikes Across Domains in Study 1



Note. Anticipated knowledge about other people who reveal a like versus a dislike in Study 1. Higher values indicate more anticipated knowledge. Values are averaged across domains.

** $p < .01$.

6.4.3 Discussion

Study 1 provided initial evidence for our hypothesis that people perceive likes as more informative than dislikes. Sampling domains and stimuli, participants on average indicated knowing more about a person who likes an attitude object than about someone who dislikes an object.

According to our rationale, these findings reflect the greater diversity of negativity, which renders dislikes more ambiguous regarding their underlying reasons than likes. However, Study 1's findings may result from differences in likes' and dislikes' perceived frequencies. Rare attributes are considered more informative than common ones (Fiske, 1980). If our selection of attitude objects is more likely disliked than liked by the general population, likes may be considered more informative because they are rarer. That is, we may have sampled likes and dislikes that differ in their frequency, and if people's likes were less frequent (i.e., rarer) than their dislikes, this could explain why likes are seen as more informative in Study 1 (see Fiske, 1980). This would constitute an obvious alternative explanation to our proposed ecologic explanation. In Study 2, we therefore replicated Study 1 and also assessed how frequent participants perceived the different likes and dislikes to be in the general population.

6.5 Study 2: Frequency of Likes and Dislikes

Study 2 was similar to Study 1 but also asked participants to indicate for each attitude object how common/rare they thought it is to like or dislike that attitude object. This allowed to test whether likes and dislikes differ regarding their perceived frequencies and whether the higher perceived informativeness of positive attitudes prevails when controlling for attitude frequency. Thereby, we test the alternative explanation that likes are only considered more informative because they are rarer. Independent of valence, based on the finding that rare attitudes are more informative (Fiske, 1980), we predicted that participants will believe to know others better who reveal a rare compared to a common attitude (link to preregistration: https://aspredicted.org/X7D_81Q).

6.5.1 Method

Participants and Design. As Study 2 measured an additional predictor variable (i.e., attitude frequency), we increased the sample to 200 UK-based participants, which again provided sufficient statistical power (> .90) to detect small-to-medium-sized effects (d_z = 0.30) with alpha at the conventional 0.05 level in the present repeated-measures design (Cohen, 1992). We ran the study again on Prolific and the platform returned observations from 199 participants (145 female, 53 male,

1 prefer not to say, mean age = 39.96). They received a £0.80 compensation. This sample size provided 80% power to detect an effect size of d_z = 0.18 or greater in a paired sample *t*-test with alpha = 0.05.

The study design was similar to Study 1, except that we also measured the perceived frequency of likes and dislikes.

Procedure. The procedure was identical to Study 1, with one exception. For each of the 16 randomly drawn attitude objects, participants also rated how rare/common it is to like (e.g., movie) "X" on a 7-point Likert scale (1 = extremely rare, 7 = extremely common). Whether participants first answered the three knowledge questions or first answered the frequency question was randomly determined for each like/dislike.

6.5.2 Results

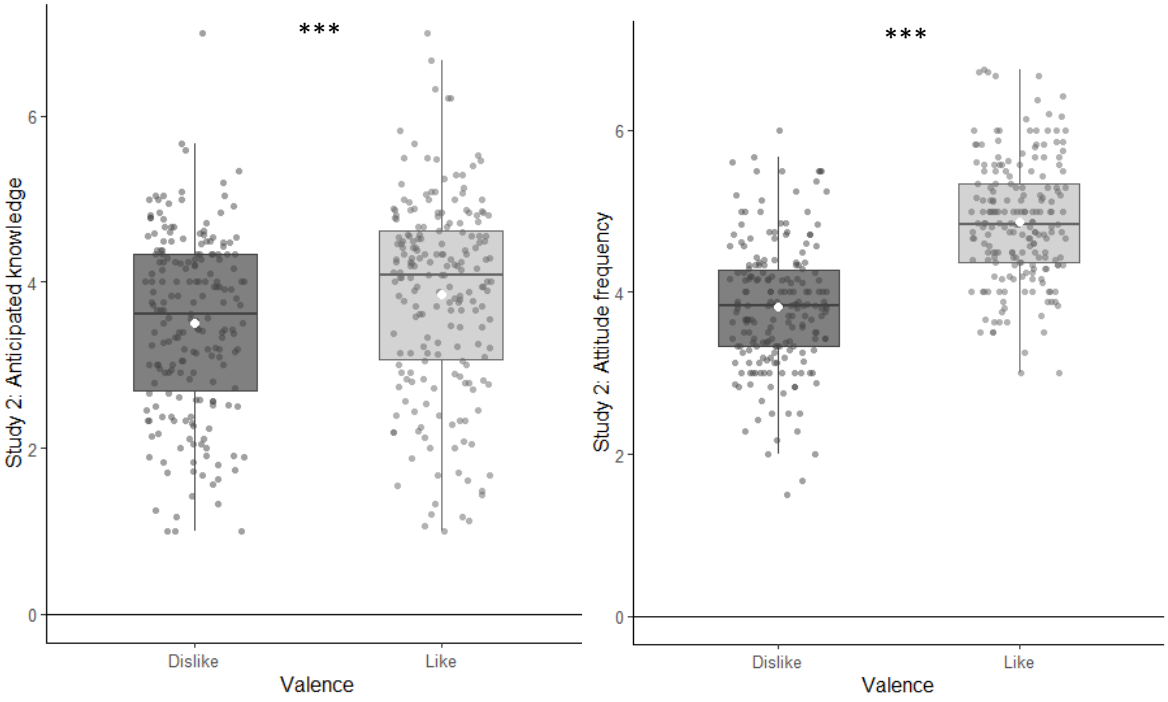
First, we again calculated composite knowledge scores for each participant's likes and dislikes. Cronbach's Alpha was α = 0.97 for likes and α = 0.96 for dislikes, indicating high internal consistency among the three items to measure anticipated knowledge. Then, we ran two paired sample *t*-tests to check whether likes and dislikes differed in their knowledge scores and frequencies. The first *t*-test confirmed the findings from Study 1. It showed that people again indicated having more knowledge about the target person when they knew what this person liked, M_{like} = 3.86 (SD_{like} = 1.16), rather than disliked, $M_{dislike}$ = 3.50 ($SD_{dislike}$ = 1.07), $t(198) = 7.54$, $p < .001$, 95% CI = [0.27, 0.45], d_z = 0.53 (see Figure 6.4, left panel). The second *t*-test showed a significant difference in the perceived frequency of likes, M_{like} = 4.88 (SD_{like} = 0.75), and dislikes, $M_{dislike}$ = 3.82 ($SD_{dislike}$ = 0.79), $t(198) = 13.13$, $p < .001$, 95% CI = [0.90, 1.22], d_z = 0.93. Hence, likes were perceived to be more common than dislikes (see Figure 6.4, right panel).

We then conducted a mixed-model regression analysis in which participants and domains were treated as random factors. As in Study 1, we first specified a model that predicted the knowledge score from the fixed effect attitude valence (1 = like, -1 = dislike). We started with the most complex model, including all possible random error components for intercepts and slopes, and

then reduced complexity according to model convergence. The first converged model included random intercepts and slopes for the participants, and random intercepts for the domain. Replicating Study 1, attitude valence significantly predicted the knowledge score in this basic model, $b = 0.18$, $SE = 0.02$, $t(197.69) = 7.56$, $p < .001$, 95% CI = [0.13, 0.23].

Figure 6.4

Anticipated Knowledge Based on Likes Versus Dislikes and Mean Perceived Frequency of Likes and Dislikes in Study 2



Note. Anticipated knowledge about other people who reveal a like versus a dislike (left) and perceived frequency of likes and dislikes (right) in Study 2. Higher values indicate more anticipated knowledge and higher frequency. Values are averaged across domains.

*** $p < .001$.

We then added attitude frequency to the model, which predicted the knowledge score from the fixed effects attitude valence (1 = like, -1 = dislike) and attitude frequency (centered). The final model that converged included random intercepts for participants and domains. This model found

that attitude frequency significantly predicted knowledge, $b = 0.08$, $SE = 0.02$, $t(2397) = 5.11$, $p < .001$, 95% CI = [0.05, 0.11]. Opposite to our expectations, participants indicated having more knowledge about a person based on common than rare attitudes. Because likes were perceived to be more common than dislikes, this may explain the higher perceived informativeness of likes. However, this was not the case as attitude valence remained a significant predictor of the knowledge score, $b = 0.14$, $SE = 0.02$, $t(2346) = 6.05$, $p < .001$, 95% CI = [0.09, 0.18]. There was no significant interaction between valence and frequency.

6.5.3 Discussion

Study 2 replicated the basic effect established in Study 1. Target persons' likes were perceived as more informative regarding those persons, their attitudes, and personalities. These findings align with our rationale that the greater diversity of negativity renders dislikes more ambiguous regarding their underlying reasons than likes, leading to greater uncertainty among reasons to dislike than among reasons to like. Study 2 ruled out that this effect was instead caused by differential perceived frequencies of positive and negative attitudes. This frequency account would have been an alternative explanation for likes' greater informativeness if those likes were *rarer* than dislikes (see Fiske, 1980). However, participants perceived likes as *more common* than dislikes. Crucially, these more common attitudes were perceived as more informative, and the higher perceived informativeness of likes prevailed when our model statistically controlled for attitude frequency.

Study 3 addressed another possible alternative explanation for likes' higher perceived informativeness. Study 2's finding that likes are more common than dislikes also implies that any given participant is more likely to share a target person's likes than their dislikes. Shared attitudes are likely perceived as more informative than unshared attitudes because they give rise to stronger self-projection (e.g., Clement & Krueger, 2002; Robbins & Krueger, 2005). Previous research has found that perceivers' tendencies to assume that others think, feel, and behave as they do are stronger for similar target persons (e.g. ingroup members). Hence, participants may perceive likes as

more informative than dislikes because participants more often share them. To test this, Study 3 also assessed participants' own attitudes towards the different attitude objects.

6.6 Study 3: Attitude Similarity

Participants in Study 3 were again asked to imagine meeting different people and learning that these people either like or dislike different things. Participants then indicated how well they thought they could anticipate what these other people were like. Study 3 also assessed participants' own attitudes towards the respective likes and dislikes. We predicted that participants would anticipate knowing more about a target person based on shared than unshared attitudes, but that this self-similarity effect would not account for likes' higher perceived informativeness (link to preregistration: https://aspredicted.org/CGH_11N).

6.6.1 Method

Participants and Design. We kept the sample size consistent with Study 2 and collected data from 200 UK-based participants (126 female, 73 male, 1 other, mean age = 39.66). Participants received a £0.80 compensation. This final sample size provided 80% power to detect an effect size of d_z = 0.18 or greater in a paired sample *t*-test with alpha = 0.05.

As before, the independent variable attitude valence (other person's likes vs. dislikes) varied within participants, and each participant saw eight randomly drawn attitude domains with two exemplars each. Besides the primary dependent variable, anticipated knowledge, we also assessed participants' own attitudes towards each like/dislike in this study.

Procedure. The first part of the study was identical to the previous studies. In addition to the knowledge assessment, the study also asked how much participants liked/disliked this (e.g.,) movie "X" on a 7-point Likert scale (1 = dislike very much, 7 = like very much). We varied randomly whether participants first answered the block of three knowledge questions or the own-attitude question. As before, the study skipped all questions concerning a specific like or dislike that participants indicated not knowing.

In the end, participants answered a few demographical questions and received a code to claim their compensation via Prolific. We deidentified all collected responses and only stored anonymous data.

6.6.2 Results

We calculated the same composite knowledge score as in the previous studies (Cronbach's α = 0.97 both for likes and for dislikes). A paired-sample *t*-test comparing the anticipated knowledge based on likes with the knowledge based on dislikes revealed a significant difference, $t(199) = 6.43$, $p < .001$, 95% CI = [0.19, 0.36], $d_z = 0.45$. This replicated the findings from the previous studies (see Figure 6.5, left panel), as participants anticipated to know targets better when they knew what the targets liked, $M_{like} = 3.86$ ($SD_{like} = 1.14$) versus disliked, $M_{dislike} = 3.59$ ($SD_{dislike} = 1.10$).

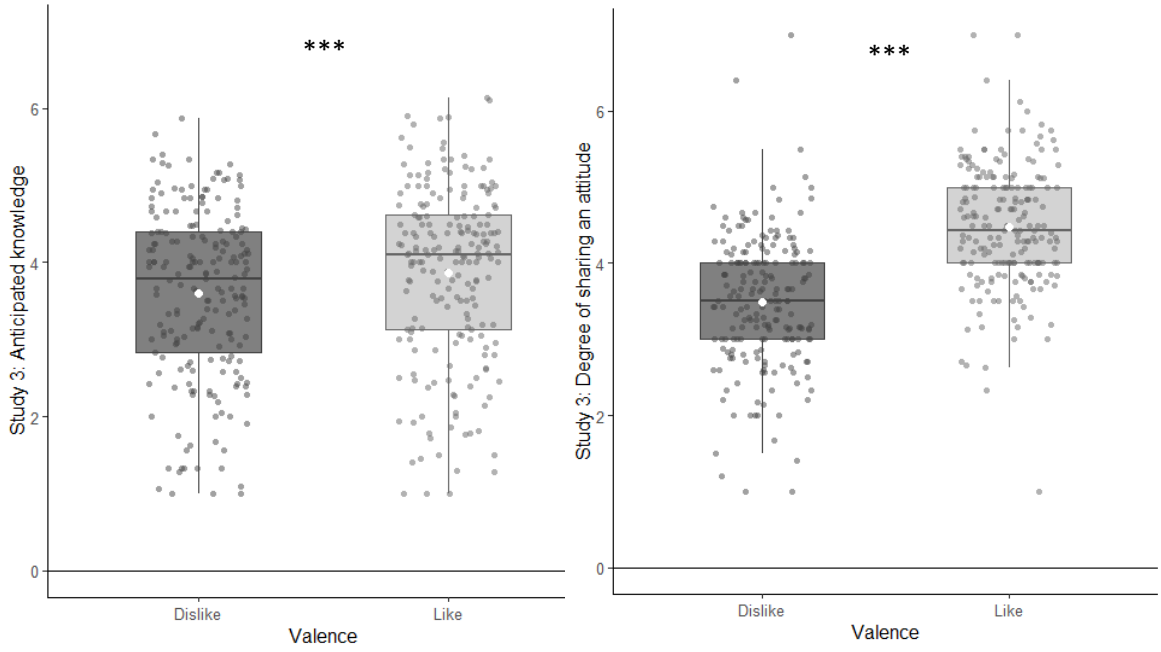
For the dislikes, we re-coded participants' responses on the own-attitude scale so that higher values indicated stronger disliking (1 = 7, 2 = 6, … 7 = 1). The resulting variable indicates the degree of sharing an attitude with higher values indicating more sharing and therefore stronger similarity between participants and targets. A paired sample *t*-test found that participants rather shared other person's likes, $M_{like} = 4.48$ ($SD_{like} = 0.81$), than other person's dislikes, $M_{dislike} = 3.49$ ($SD_{dislike} = 0.87$), $t(199) = 10.27$, $p < .001$, 95% CI = [0.79, 1.17], $d_z = 0.73$ (see Figure 6.5, right panel).

Next, we conducted mixed-model regression analyses. We first predicted the knowledge score from the fixed effect attitude valence (1 = like, -1 = dislike). The most complex model without singular fit included random intercepts for participants and random intercepts and slopes for domains. Attitude valence was a significant predictor of the knowledge score, $b = 0.14$, $SE = 0.02$, $t(16.30) = 5.80$, $p < .001$, 95% CI = [0.09, 0.19]. Participants assumed they knew others better who revealed a like than a dislike.

Then, we specified a model that predicted the knowledge score from the attitude similarity variable (not centered). The model again included random intercepts for participants and random intercepts and slopes for domains. Attitude similarity did not predict knowledge, $b = 0.00$, $SE = 0.01$, $t(1855) = 0.22$, $p = .829$, 95% CI = [-0.02, 0.03].

Figure 6.5

Anticipated Knowledge Based on Likes Versus Dislikes and Degree of Sharing the Own Likes and Dislikes (Attitude Similarity) in Study 3



Note. Anticipated knowledge about other people who reveal a like versus a dislike (left) and degree of sharing likes and dislikes (attitude similarity; right) in Study 3. Higher values indicate more anticipated knowledge and higher similarity. Values are averaged across domains.

*** $p < .001$.

Next, we specified a model that predicted the knowledge score from the fixed effect own attitude (not centered). Note that high values of this variable indicate that participants liked the attitude object, and low values indicate that participants disliked them. The final model included random intercepts for participants and domains. Participants' own attitude significantly predicted the knowledge score, $b = 0.09$, $SE = 0.01$, $t(2290) = 6.72$, $p < .001$, 95% CI = [0.06, 0.12]. Thus, the more people liked (versus disliked) an attitude object, the more they believed to know about the target person.

A final model predicted the knowledge score from the fixed effects attitude valence (1 = like, -1 = dislike) and own attitude (centered). This model included random intercepts for participants and domains. Both attitude valence, $b = 0.14$, $SE = 0.02$, $t(2225.25) = 6.99$, $p < .001$, 95% CI = [0.10, 0.18], and participants' own attitudes, $b = 0.09$, $SE = 0.01$, $t(2287.41) = 6.85$, $p < .001$, 95% CI = [0.06, 0.12], significantly predicted the knowledge score. The interaction was not significant, $b = -0.01$, $SE = 0.01$, $t(2252.72) = 0.99$, $p = .324$, 95% CI = [-0.04, 0.01].

6.6.3 Discussion

Study 3 again replicated the higher perceived informativeness of likes. In addition, Study 3 showed that our stimulus sample seems to represent an ecology in which positive attitudes are more frequent, as participants tended to like the attitude objects on average. Thus, it is likely that participants are more likely to share target persons' likes than their dislikes. However, this higher similarity among participants and targets who liked an attitude object did not explain the higher informativeness of likes. This was evident because attitude similarity itself did not predict the knowledge score. Thus, Study 3's findings align with our rationale that likes are more informative than dislikes because there is less ambiguity concerning possible reasons underlying one's likes.

Unexpectedly, we found an influence of participants' own attitudes on perceived knowledge that was different than expected. Participants indicated that they had more knowledge about a target person who revealed a like or dislike about an attitude object the participants themselves *liked*. In hindsight, this may be explained by the fact that people spend more time thinking about and engaging with attitude objects they like. As a result, people may have more knowledge regarding the underlying reasons why someone may like or dislike an attitude object that they themselves like.

After ruling out two alternative explanations for likes' higher perceived informativeness, the final Studies 4 and 5 directly tested our suggested explanation based on the EvIE model. To reiterate, we assume there are more possible reasons to dislike than to like something, rendering dislikes less informative. If our reasoning is correct, people should show less agreement and feel less certain about the reasons underlying a person's dislike than a person's like. We tested this in two final

studies that assessed perceived agreement on reasons underlying likes versus dislikes (Study 4) and how certain participants felt regarding the reasons underlying a person's likes or dislikes in general (Study 5).

6.7 Study 4: Agreement on Underlying Reasons

Study 4 asked participants to name reasons why someone may like or dislike different attitude objects. Participants were then asked to indicate the likelihood that others would like/dislike the respective attitude object for the same reason they generated. The EvIE model predicts that participants consider it more likely that target persons share their likes (vs. their dislikes) for the same reasons as they do (link to preregistration: https://aspredicted.org/D7L_N8Y).

6.7.1 Method

Participants and Design. We collected data from 200 UK-based participants on Prolific (144 female, 54 male, 1 other, 1 prefer not to say, mean age = 38.71). Participants received a £1.07 compensation. Sensitivity power analysis showed that this final sample of 200 participants provided 80% power to detect an effect size of d_z = 0.18 or greater in a paired sample *t*-test with alpha = 0.05.

This time, we varied attitude valence as the independent variable as to whether participants provided a reason for why someone may like versus dislike something. We used the same attitude objects as in all previous studies. Each participant saw two attitude objects from each of the eight randomly drawn attitude domains. For one of the attitude objects from each domain, participants were asked to name a reason why someone may like this attitude object, and for the other attitude objects, they were asked to name a reason for disliking them. The dependent variable was the assumed agreement concerning the underlying reasons for likes and dislikes. We asked four questions to assess this dependent variable and computed a composite agreement score based on these four questions (see below).

Procedure. For each randomly drawn attitude object, participants were asked to name one reason why someone may like [dislike] it and type it into a textbox (in the following, referred to as *textbox entry*). Participants were then asked to answer four questions for each reason they had

generated. For the reasons related to likes, participants were asked, “How likely is it that for a person who likes (e.g., the movie “X”), [*textbox entry*] is a reason to like it?”, "For how many people who like (e.g., the movie “X”), [*textbox entry*] is a reason to like it?”, “How likely is it that for a person who likes (e.g., the movie “X”), [*textbox entry*] is **not** a reason to like it?”, and “For how many people who like (e.g., the movie “X”), [*textbox entry*] is **not** a reason to like it?” For reasons related to dislikes, participants were asked, “How likely is it that for a person who dislikes (e.g., the movie “Y”), [*textbox entry*] is a reason to dislike it?” and questions two to four were phrased accordingly. We assessed all responses on 7-point Likert scales (1 = not at all likely/very few, 7 = extremely likely/very many).

We also assessed whether participants knew each attitude object on a binary scale (1 = yes, 2 = no). Unlike the previous studies, Study 4 did not skip any of the other questions if participants chose “no”, to avoid that participants would use the “no” option to quickly skip through the study once they had understood the survey flow. Instead, we preregistered to exclude participants’ responses to unknown attitude objects.

Finally, the study asked a few demographical questions. We deidentified all collected responses and only stored anonymous data.

6.7.2 Results

As preregistered, we excluded participants’ responses to those attitude objects they indicated not to know.[11]

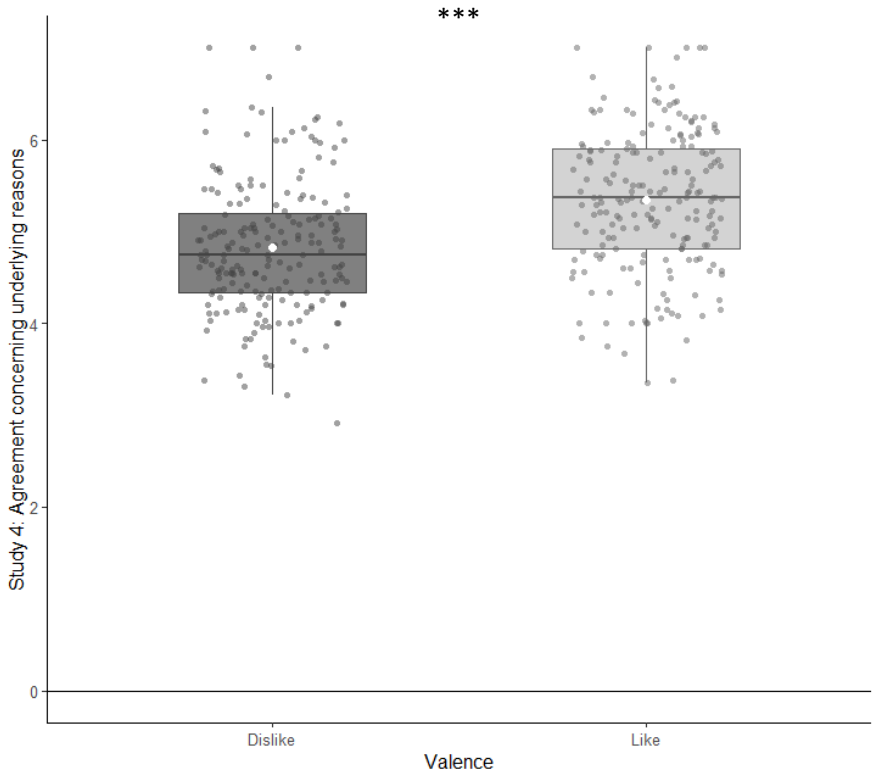
We first reverse-coded responses to the third and fourth agreement questions. We then calculated the composite agreement score by averaging all four variables (Cronbach’s $\alpha = 0.82$ for likes and $\alpha = 0.79$ for dislikes). A paired sample *t*-test found that the agreement score for likes and dislikes differed significantly, $t(199) = 10.49$, $p < .001$, 95% CI = [0.42, 0.62], $d_z = 0.75$. As predicted, participants assumed that the reasons they generated for liking an attitude object would apply to

[11] Originally, we also preregistered to exclude participants’ answers to the four agreement questions if they entered more than one reason in the first step. Two research assistants and the first author independently coded all responses and excluded answers with more than one reason. However, as excluding these multiple answers did not change the results, we kept them in the reported analysis.

other people's likes more (M_{reason_like} = 5.34; SD_{reason_like} = 0.77) than the reasons they generated for dislikes would apply to other people's dislikes ($M_{reason\_dislike}$ = 4.82; SD_{reason_like} = 0.73; see Figure 6.6).

Figure 6.6

Agreement Concerning the Reasons Underlying Likes and Dislikes in Study 4



Note. The degree to which participants indicate that others like versus dislike something because of the same reason they indicated. Higher values indicate higher agreement concerning the reasons underlying a like versus a dislike. Values are averaged across domains and across the four questions per attitude.

*** $p < .001$.

We conducted a mixed-model regression analysis with participants and domains as random factors to check whether this effect generalizes across attitude domains. We specified a model that predicted the agreement score from the fixed effect attitude valence (1 = like, -1 = dislike). This

model included random intercepts and slopes for participants and domains. Confirming the results from the *t*-test, attitude valence significantly predicted the agreement score in this model, $b = 0.26$, $SE = 0.03$, $t(32.21) = 10.05$, $p < .001$, 95% CI = [0.21, 0.31].

6.7.3 Discussion

Study 4 provided initial evidence for our idea that likes are perceived as more informative than dislikes because there is greater assumed agreement regarding the reasons underlying likes. According to the EvIE model, there are more possible reasons for disliking something; therefore, people cannot infer as much from someone's dislikes. Participants in Study 4 expressed greater confidence that people who like an attitude object do so for the same reason participants had previously generated, while this confidence was lower for dislikes. This implies that people can better infer the reasons for likes than the reasons for dislikes.

In the final Study 5, we conducted a more direct test of our suggested mechanism. We directly asked participants how certain they would feel about the reasons why a person likes or dislikes the respective attitude objects. In addition, we again assessed our central dependent variable, namely anticipated knowledge of the target persons. This allowed us to test whether certainty regarding the underlying reasons for likes and dislikes could statistically account for the greater inferred target knowledge from likes vs. dislikes.

6.8 Study 5: Certainty of Reasons in General

Study 5 tested whether individuals feel more certain about the reasons underlying likes compared to those underlying dislikes and whether this effect could account for the more confident inferences that people draw based on likes. Participants were again presented with different attitude objects from various domains. Study 5 asked participants to indicate how well they thought they knew the reasons why someone would like or dislike a respective attitude object. Participants were also asked to indicate how well they thought to know someone who likes vs. dislikes an attitude object, using the same scales as in Studies 1 to 3 (link to Study 5's preregistration: https://aspredicted.org/2XY_F8G).

6.8.1 Method

Participants and Design. We aimed for the same sample size of 200 as in the previous studies. Prolific returned data from 201 UK-based participants (138 female, 62 male, 1 other, mean age = 37.69) who received a £1.05 compensation. This sample provided 80% power to detect an effect size of d_z = 0.18 or greater in a paired sample *t*-test with alpha = 0.05.

The design, the independent variable attitude valence, and the primary dependent variable anticipated knowledge were identical to Studies 1 to 3. In addition, we assessed knowledge about reasons (see Procedure).

Procedure. Instructions and the knowledge assessment were identical to Studies 1 to 3. In addition, Study 5 asked how well participants thought to know the reasons why a person likes versus dislikes an attitude object (e.g., movie "X)" on a 7-point Likert scale (1 = not at all, 7 = very well; from now on called "knowledge about reasons" variable). Whether participants first answered the knowledge about reasons or the knowledge about person questions varied randomly for each attitude object.

6.8.2 Results

We calculated composite knowledge scores for each participant's likes and dislikes as before (Cronbach's α = 0.97 for likes and α = 0.96 for dislikes). A paired sample *t*-test to compare the knowledge scores of likes and dislikes revealed a significant difference, $t(199) = 5.89$, $p < .001$, 95% CI = [0.20, 0.40], $d_z = 0.41$.[12] This replicated the basic effect of higher anticipated knowledge about another person based on likes, $M_{like} = 3.68$ ($SD_{like} = 1.15$), than on dislikes, $M_{dislike} = 3.38$ ($SD_{dislike} = 1.14$; Figure 6.7, left panel).

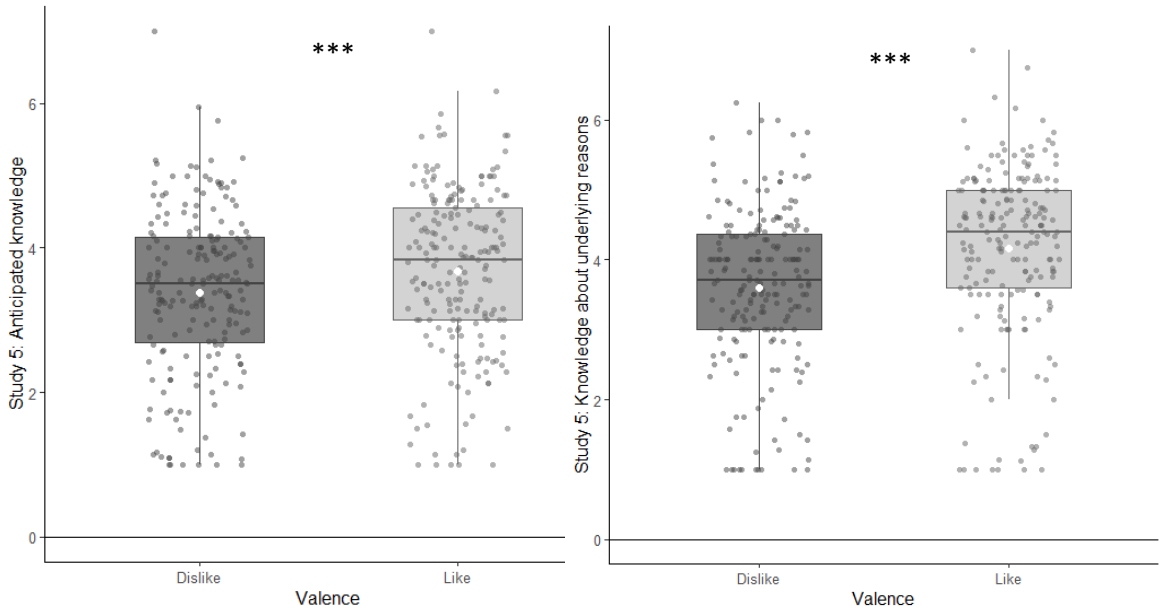
A second paired sample *t*-test revealed a significant difference in how well participants thought they knew the reasons why another person likes versus dislikes something. As predicted,

[12] The number of degrees of freedom is reduced by one in this analysis because one participant indicated not to know any of the presented dislikes. As the study skipped the knowledge questions if participants indicated not to know the example, there were no values to calculate the mean knowledge score for dislikes for this participant. Therefore, the *t*-test did not include this participant.

people thought they knew the reasons for likes better than the reasons for dislikes, M_{like} = 4.17 (SD_{like} = 1.21) vs. $M_{dislike}$ = 3.61 ($SD_{dislike}$ = 1.15) , $t(199) = 9.12$, $p < .001$, 95% CI = [0.44, 0.68], $d_z = 0.63$ (see Figure 6.7, right panel).

Figure 6.7

Anticipated Knowledge Based on Likes Versus Dislikes and Knowledge About the Reasons Underlying Likes Versus Dislikes in Study 5



Note. Anticipated knowledge about other people who reveal a like versus a dislike (left) and presumed knowledge about the reasons underlying likes versus dislikes (right) in Study 5. Higher values indicate more anticipated knowledge about who a person is and higher knowledge about the reasons underlying a person's likes or dislikes. Values are averaged across domains.

*** $p < .001$.

We then specified a mixed-effects model that predicted the person-related knowledge score from the fixed effect attitude valence (1 = like, -1 = dislike). The most complex model converged, including all random intercepts and slopes for participants and domains. Once again, attitude valence

significantly predicted the knowledge score, b = 0.15, SE = 0.04, t(17.07) = 3.83, p = .001, 95% CI = [0.07, 0.22], which was higher for likes than dislikes.

Next, we specified a model that predicted the person-related knowledge score from the fixed effect knowledge about reasons (not centered). The model included random intercepts for participants and domains and random slopes for participants. Knowledge about underlying reasons significantly predicted the person-related knowledge score, b = 0.44, SE = 0.02, t(195.11) = 21.93, p < .001, 95% CI = [0.40, 0.48]. The better participants thought to know the specific reasons why someone likes or dislikes something, the better they thought to know this person and his or her attitudes and personality *in general*.

A final model predicted the person-related knowledge score from the fixed effects attitude valence (1 = like, -1 = dislike) and knowledge about reasons (centered). To ensure comparability of both predictors, the model included only random intercepts for participants and domains but no random slopes. Knowledge about reasons significantly predicted person-related knowledge, b = 0.43, SE = 0.01, t(2453) = 30.35, p < .001, 95% CI = [0.40, 0.46], while attitude valence was not a significant predictor anymore, b = 0.03, SE = 0.02, t(2263) = 1.57, p = .117, 95% CI = [-0.01, 0.07]. Thus, when controlling for knowledge about reasons, likes and dislikes no longer differed regarding the anticipated person-related knowledge. The interaction between the two predictors was marginally significant, b = 0.02, SE = 0.01, t(2284) = 1.95, p = .051, 95% CI = [-0.00, 0.04].

To quantify the proportion of the attitude valence effect on person-related knowledge that was accounted for by knowledge about reasons, we ran a non-preregistered mediation analysis using the “mediation” package in R (v4.5.0; Tingley et al., 2014). The package allows us to specify only one random factor, so we excluded the domain factor. The specified models included only random intercepts for participants, and the mediation procedure was simulated 1000 times. The model found a total effect of b = 0.15, p < .001, a non-significant direct effect of attitude valence on person-related knowledge, b = 0.03, p = .110, but a significant indirect effect via knowledge about reasons of b = 0.12, p < .001. Thus, knowledge about reasons accounted for 80% of the total effect, p < .001.

6.8.3 Discussion

Study 5 again replicated our central finding that likes were perceived as more informative than dislikes. In addition, Study 5 confirmed that participants felt more certain regarding the reasons underlying target persons' likes than their dislikes. As predicted, the higher certainty of reasons underlying likes vs. dislikes accounted for the higher person-related knowledge prompted by likes vs. dislikes. These results support our idea that the greater diversity of negativity renders reasons underlying negative attitudes more uncertain, which then allows participants to draw fewer conclusions regarding people's attitudes and personalities.

6.9 General Discussion

The present work established that people believe they know a person better based on their likes than their dislikes. Positive attitudes were perceived to be more informative than negative attitudes across a variety of 16 attitude domains. This effect was not due to the differential frequency of likes and dislikes (Study 2) nor due to likes being more likely shared by perceivers than dislikes (Study 3). Instead, findings from Studies 4 and 5 align with the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019). This model proposes that negativity is more diverse than positivity, which implies that there are more possible reasons for disliking something than reasons for liking something (see Figure 6.1). Consequently, perceivers can better infer the reasons why a person likes what they like, allowing further inferences about that person, while there remains considerable uncertainty regarding the reasons why someone dislikes what they dislike, restricting the scope of further inferences about people.

6.9.1 Theoretical Implications

Extensive research on impression formation has found that negative traits or behaviors have a stronger impact on people's impressions than positive ones. The notion that "bad is stronger than good" has been explained based on evolutionary preparedness (Baumeister et al., 2001; Rozin & Royzman, 2001) and on the greater informativeness (Fiske, 1980) or diagnosticity (Skowronski & Carlston, 1987) of negative attributes. Hence, the present finding that positive attitudes are

perceived as more informative than negative attitudes are an exception to the typical negativity biases in social perception.

These results can be explained by the EvIE model (Unkelbach et al., 2019; see also Alves et al., 2017b). First, this model assumes that there are more ways to be negative than to be positive because desirable attribute ranges are usually moderate and surrounded by two negative ranges (*range principle*; Alves et al., 2017b), and because a smaller number of negative attributes is required to render an attitude object undesirable compared to the number of positive attributes that is required to render an attitude object desirable (*Anna Karenina principle*; Diamond, 1997; Moore, 2001). The resulting greater diversity of negativity implies that there are more possible reasons to dislike an attitude object than there are reasons to like an attitude object. In other words, people like things for similar reasons but dislike things for different reasons (Gershoff et al., 2007), and therefore, knowing a person's dislikes does not allow as many inferences regarding that person's personality or other attitudes as knowing a person's likes. Hence, according to the EvIE model, positive attitudes are more informative regarding their underlying reasons than negative attitudes. If you know that Peter likes surfing, you know that Peter likes the ocean, is not afraid of sharks, is in good physical condition, and so on. If you know that Peter dislikes surfing, there could be many reasons, but you cannot infer any reason with great certainty.

6.9.2 Practical Implications

Our findings help to explain why people experience stronger interpersonal attraction when they share a positive attitude than when they share a negative attitude. Previous research found that this stronger attraction potential of positive attitudes could be explained by people's general preferences for likers vs. dislikers and by a higher revelation value of positive attitudes (Zorn et al., 2022).

The present work further supports the revelation explanation as our participants perceived likes to be more informative concerning target persons' personalities and attitudes than dislikes. Consequently, knowing that someone shares my liking for surfing indicates a higher degree of

interpersonal similarity than knowing that someone shares my dislike for golf. This may also help to explain why most interest groups, online or offline, form based on members' shared likes rather than dislikes.

Our work also has practical implications for initiating friendships or romantic relationships. At a party, potential friends or dating partners should primarily talk about their likes rather than dislikes, as these allow for stronger inferences regarding interpersonal similarity. Likewise, revealing likes rather than dislikes on your online dating profile is advisable to increase the chances of attracting compatible dating partners. Note that such practices are actually applied by all major dating apps. Facebook dating, for example, matches potential dating partners based on their shared Facebook likes.

6.9.3 Limitations and Open Questions

One limitation of our work is that we only assessed anticipated knowledge. Participants indicated how well they *thought* they knew another person based on their likes or dislikes. However, anticipated knowledge does not necessarily have to translate into actual knowledge. While anticipated knowledge is more relevant to interpersonal attraction than actual knowledge, future research should assess whether likes are indeed more informative than dislikes. This would allow us to test whether the anticipation that likes are more informative has a factual basis, as implied by the EvIE model.

Although our findings align with the EvIE model, the evidence that the higher certainty in reasons underlying likes *causes* people to perceive likes as more informative than dislikes is limited. A statistical mediation analysis, as applied in Study 5, constitutes a necessary but not a sufficient condition to infer causality. Experimentally manipulating the diversity of potential reasons underlying attitudes is impossible because it constitutes a fixed feature of the information ecology.

Even though the knowledge effect generalized across attitude domains, there was one exception. In Studies 1 and 5, participants anticipated to know others better who disliked a certain language than others who liked a certain language. While we did not find this reversed effect

consistently across all five studies, there may be certain attitude domains for which dislikes are more informative than likes, which remains to be tested by future research.

6.10 Conclusion

Positive and negative attitudes are not perceived as equally revealing regarding the attitude holder. People believe to know others better based on their likes than dislikes. This phenomenon may reflect that there are few reasons to like but many reasons to dislike.

Open Practices

Manuscript data, analysis code, materials, and preregistrations are openly accessible at https://osf.io/f8nme/?view_only=f92fd9cca28b4cb4a46c5339122721d0.

Chapter 7: General Discussion

The previous three empirical chapters presented novel insights into how the valence of people's attributes (i.e., traits or attitudes) shapes the perception and impression of individuals. Several overarching aspects of the presented empirical findings can be summarized.

First, for all predictions in these chapters, we followed a cognitive-ecological approach based on the Evaluative Information Ecology (EvIE) model (e.g., Unkelbach et al., 2019, 2020). Second, all investigations focused on contexts where minimal information about another person was available. This was either one positive or negative trait (Chapter 4) or one (two) positive or negative attitude(s) (i.e., like or dislike; Chapters 5 and 6). These minimal contexts are relevant because they mirror the standard situation of first encounters, particularly when meeting online. Third, the focus lay on the assessment of initial liking as well as impressions and attitudes that occur at the earliest stages of contact (i.e., getting to know a new person, e.g., on a dating app). More specifically, in Chapter 4, we measured swiping behavior as an indicator of people's positive or negative attitudes towards potential dating partners. Swiping a person left indicated a negative attitude, while swiping a person right indicated a positive attitude. In Chapter 5, we directly assessed the initial liking of fictional target persons in the tradition of classic research in impression formation (e.g., Anderson, 1965, 1974). Participants indicated how likable they found target persons who expressed to either like or dislike certain attitude objects. In Chapter 6, we looked at impressions in a broader sense and assessed the knowledge that people inferred based on other people's likes or dislikes.

This overview shows that we did not only examine valence asymmetries in romantic contexts (Chapter 4), but for various kinds of acquaintances. That is, the items assessing likability (Chapter 5) and anticipated knowledge about other people (Chapter 6) could be applied to all kinds of interpersonal relationships including those with friends, work colleagues, neighbors, etc.

In these contexts with little information available, we found evidence for a higher impact of negative attributes on the one hand (i.e., of traits in dating; Chapter 4) and for a higher impact of positive attributes (i.e., of peoples likes rather than dislikes; Chapters 5 and 6) on the other hand.

Finding the former is not surprising given the prominent notion that negative information has a stronger impact on interpersonal evaluations (e.g., Kanouse & Hanson, 1972; Peeters & Czapinski, 1990; Skowronski & Carlston, 1989). Finding evidence for the latter, however, is more surprising, especially given that past research suggested the opposite; that is, a higher impact of shared negative attitudes for interpersonal liking (Bosson et al., 2006; Weaver & Bosson, 2011).

With its base on the Evaluative Information Ecology (EvIE) model, the research presented in the previous three chapters ties in with the line of previous work that adopted a cognitive-ecological perspective to explain phenomena in various areas. These include the perception of groups and intergroup biases (Alves et al., 2018, 2024; Woitzel & Alves, 2024), evaluative learning and evaluative conditioning (Alves et al., 2020; Sperlich & Unkelbach, in press), temporal self-appraisals (Baldwin et al., 2024), and also person perception (Koch et al., 2024).

The approach of this dissertation provides a new perspective on how to investigate traits in dating, the influence of people's positive and negative attitudes for the similarity effect and inferred knowledge based on people's attitudes. In short, I propose that the valence asymmetries presented in Chapters 4 to 6 result from positive and negative attributes' differential diversity and similarity in the information ecology. In Chapter 4, I refer to this as the structural level of traits. This perspective differs from previous motivational and affective explanations for valence asymmetries, that are for example based on phylogenetic learning (e.g., Baumeister et al., 2001; Rozin & Royzman, 2001; but see 2.2). Those assume that valence asymmetries result from how the organism reacts to stimuli, and these reactions are either formed by evolution (e.g., Leising et al., 2012, 2014) or depend on individuals' motivational states (Alves et al., 2015). For example, the higher diversity of negative terms to describe people has been interpreted as an evolutionary developed tendency to identify and communicate information about interpersonal threats correctly (Leising et al., 2012, 2014). Our approach to consider how the social environment and the ecology are structured and to not only look at factors within the individual (e.g., affect, motivation) is based on the early idea that the influence of the external information ecology for psychological processes should not be disregarded

(Brunswik, 1955; Garner, 1974; Lewin, 1939). However, I do not claim that motivation does not play any role in the findings presented in this dissertation. As I did not investigate this process level, this is something I cannot rule out with the present studies.

In the upcoming general discussion, I first discuss whether established models of the similarity effect (see 1.2.2) are compatible with our finding that shared likes bond stronger than shared dislikes (referred to as "shared likes' dominance"; see 7.1). Next, I explain how I would interpret the findings from Chapter 4 as evidence for a higher impact of negative than positive attributes, and the findings from Chapters 5 and 6 as evidence for a higher impact of positive than negative attributes. I focus, in particular, on attributes' diagnosticity and informativeness as the central explanations for the demonstrated valence asymmetries. I summarize my differentiated finding that negativity is *more* informative and diagnostic for traits in dating (Chapter 4), but *less* informative and diagnostic for shared and unshared attitudes (Chapter 5) and the inference of knowledge (Chapter 6) in Figure 7.1. This figure serves as an overview and as a demonstration that the higher impact of negative information is not universal. Further, I discuss why the findings of positive attitudes' higher impact (Chapters 5 and 6), as derived from the higher diversity of negative attributes (i.e., EvIE model; Unkelbach et al., 2019), are indeed surprising and not trivial. To do so, I outline that other models and existing theoretical approaches would have made opposite predictions for the same scenarios. These opposite predictions also consider informativeness and diagnosticity as explanations for valence asymmetries. Lastly, I discuss limitations, future directions, and implications of my work.

7.1 Compatibility of Shared Likes' Dominance With Established Explanations

Tying back to Chapter 1 (see 1.2.2), some of the presented models and accounts to explain the similarity effect provide insights into whether the valence of shared attitudes should make a difference for interpersonal liking, while others do not.

First, *balance theory* (Heider, 1946, 1958) does not differentiate between the valence of shared attitudes. As long as the attitudes are the same (either shared positive or shared negative),

psychological balance and positive feelings should follow. Similarly, Rosenbaum's *repulsion hypothesis* (1986) does not state whether dissimilar positive versus negative attitudes should differ in the amount of created repulsion. From the *anticipation of liking* perspective (Condon & Crano, 1988), it also should not make a difference whether the other person shares a like or a dislike: Both cases constitute a similar attitude, which should foster the anticipation of being liked. Lastly, Byrne's *reinforcement model* (e.g., 1971) also does not allow the conclusion of whether sharing positive or negative attitudes differs in how well it satisfies a person's effectance motive.

The *rewards of interaction model* (Davis, 1981; Werner & Parmelee, 1979) and the *information processing perspective* (e.g., Ajzen, 1974; Kaplan & Anderson, 1973; Tesser, 1971), however, *would* allow conclusions about differential liking depending on the shared attitudes' valence. Crucially, these would match our finding that shared likes dominate shared dislikes.

The key component of the rewards of interaction model (Davis, 1981; Werner & Parmelee, 1979) are rewards. Shared positive attitudes should create more behavioral rewards than shared negative attitudes. In our paper presented in Chapter 5, we refer to this as behavioral implications (see 5.1.2). This is already evident from the example presented in Chapter 1 (see 1.2.2). People can attend concerts together based on the shared liking of artists, spend vacations together based on shared travel preferences, visit restaurants together based on shared food preferences, and so on. The shared dislike for artists, travel destinations or food does not allow for similarly rewarding behavioral experiences. This is further supported by the idea that people follow a hedonic principle of information sampling and prefer to engage in activities they like as opposed to dislike (Denrell, 2005; Fazio et al., 2004; see also Alves et al., 2016). Indeed, when asked to list what attitudes people share with their current closest relationship partners, people list more positive than negative shared attitudes (Bosson et al., 2006; Study 1).

Lastly, the information processing perspective (e.g., Ajzen, 1974; Kaplan & Anderson, 1973; Tesser, 1971) provides valuable insights in two ways. First, the distinction between shared likes versus dislikes could be implemented as the weighting factor in the information processing

perspective. To reiterate, the perspective posits that the more information an attribute conveys about a person, the more weight it receives for the attraction evaluation (Montoya & Horton, 2013). This can be combined with the ecological approach (Unkelbach et al., 2019, 2020): if one assumes that positive attitudes convey more information because of their lower ambiguity regarding underlying reasons, their stronger weight for interpersonal liking should follow logically. Second, a further assumption of the information processing perspective is that similarity leads to liking because people infer that someone who shares the own attitude has further similar attitudes. Based on research on the implications of the EvIE model with regard to negative information's higher diversity and lower similarity (i.e., halo effects, see 3.2), I would predict that inferences from a shared positive attitude to other shared attitudes (either positive or negative) should be more likely than inferences from a shared negative attitude to other shared attitudes. This prediction is similar to past research that demonstrated stronger inferences of positive traits to other positive traits than of negative traits to other negative traits (Gräf & Unkelbach, 2016, 2018; see 3.2). That is, positive attitudes might be more strongly connected and associated with each other due to the higher similarity of positive concepts (density hypothesis; Unkelbach et al., 2008) and could, therefore, more likely co-activate each other. Assuming no such interconnectedness of negative concepts (e.g., negative attitudes; dislikes), learning that someone has a negative shared attitude should not necessarily lead to the inference of further shared negative attitudes.

This also aligns with Gershoff et al. (2003), who described that liked attitude objects are surrounded by a more extensive and accessible semantic network than disliked attitude objects (i.e., higher attitude accessibility and thus higher informativeness of positive attitudes; see 2.2.2). Stronger inferences from shared positive to other shared positive attitudes also follow from the idea that there are more reasons to dislike than to like something. If two people share a positive attitude, chances are high that they have similar reasons for liking it. For example, if two people both like Taylor Swift (i.e., shared positive attitude), both probably like country music, her liberal mindset, the ideals she represents, etc. If people can be certain about the underlying reasons, they can infer

further attitudes (either positive or negative) more confidently. To keep the example, one could likely infer that the person who likes Taylor Swift also likes other liberal artists and does not like artists that are misogynistic. The shared dislike for Ed Sheeran does not allow for similar inferences, because both might dislike him for different reasons. This also demonstrates why I assume that two people who share a like are actually more similar to each other (not only perceived) than two people who share a dislike. I discuss this further in the limitations and future directions section (see 7.4.2).

7.2 Interpreting the Findings as Evidence for Positive Versus Negative Attributes' Higher Impact

When I introduced the concept of valence asymmetries in Chapter 2 (2.1.1), I defined negativity advantages as cases in which negative information has more impact than positive information, and vice versa for positivity advantages. However, as already noted in Chapter 2, it can be misleading to say that either has an "advantage" over the other (see also Corns, 2018). This is especially evident in the interpretation of the findings concerning traits in dating in Chapter 4. Even determining whether positive or negative traits have a *higher impact* can be a matter of interpretation. Thus, I will be careful with this terminology for the interpretation of the traits in dating findings. By contrast, I consider the interpretation of the findings regarding people's likes and dislikes as a positivity advantage more straightforward. This concerns the difference in likability depending on shared attitudes' valence (Chapter 5) as well as the differential amount of inferred knowledge based on people's positive and negative attitudes (Chapter 6). In the following, I explain my reasoning in detail.

7.2.1 Traits in Dating

In Chapter 2, I reviewed mixed evidence regarding the question of whether people consider positive or negative traits of potential partners as more important when forming an impression and evaluating the potential partner. While some studies showed that people weigh dealbreakers more than dealmakers (Jonason et al., 2015, 2020; Zuckerman & Sinicropi, 2011; see 2.1.2), others did not (Csajbók & Berkics, 2022; see 2.1.3). In the manuscript presented in Chapter 4, we operationalized trait importance in line with classic information integration theories of impression formation

(e.g., Anderson, 1965; Asch, 1946) as the weight that people assign to different traits. For the traits sampled in our studies, participants indicated it was more important to avoid negative traits than to look for positive traits. I argue that this result suggests a negativity advantage in the classic sense. That is, people assign greater weight to negative traits when evaluating potential partners.

Informativeness and Diagnosticity. One major finding of the manuscript presented in Chapter 4 is that negative traits' similarity on a structural level predicted the decision whether people swipe left or right on a hypothetical online platform. We concluded that negative traits' similarity was more diagnostic for predicting swiping behavior than positive traits' similarity, which matches the general notion of negative information's higher informativeness and diagnosticity in social perception (Fiske, 1980; Skowronski & Carlston, 1987). For this finding, I do not interpret the higher diagnosticity as a negativity advantage or as a higher impact of negative traits per se. Rather, I focus on what the higher diversity of negative traits implies for a differential informativeness of positive and negative traits for dating.

To reiterate, we showed the positivity frequency (see 3.1.1) and the negativity diversity (see 3.1.2) empirically in Chapter 4. Each participant listed more positive than negative traits, but the overall trait list across participants featured more unique negative than unique positive traits. This matches past research by Leising et al. (2012) who found that participants described liked targets with more terms than disliked targets; yet, this higher number of terms for positive targets featured less distinct terms compared to the number of distinct terms for disliked targets.

In the manuscript in Chapter 4, we conclude that people agree on what they look for, while they show less agreement on what to avoid. Consequently, potential partners' negative traits are more informative when deciding if they match someone's idea of a potential date. For example, someone might ask a friend whether they know a person to go on a date with. If the friend makes suggestions about potential persons to date, listing positive traits (e.g., kind, helpful, industrious) would not be informative regarding whether this person might match the partner ideals. That is, because positive traits are universally desirable and most people would agree that these are traits to

look for. Rather, the friend should think of what might be negative traits of that potential dates. Based on our research, there is more variance and diversity regarding which negative traits people consider as a reason not to date or to date that person. For one person, the negative trait "chaotic" might be a dealbreaker, while others do not mind a person being chaotic. To conclude, highlighting a person's negative traits is what makes it possible to decide whether this person might be considered a potential date in the first place.

This also relates to Fiske's (1980) description of a trait as informative if it enables one to distinguish between people. Positive traits, due to their lower diversity, do not differentiate between people (e.g., dating partners) as well as negative traits. In a way, thus, this might be interpreted as an "advantage" of negative traits regarding their power to distinguish between people in dating.

7.2.2 Attitude Similarity

In Chapter 5, we stated that people's positive attitudes (i.e., their likes) were more important for interpersonal liking than people's negative attitudes (i.e., their dislikes) across four studies and several attitude domains. People found others who shared their positive attitudes more likable than others who shared their negative attitudes. At the same time, they found others who did not share their positive attitudes less likable than others who did not share their negative attitudes. I interpret this valence asymmetry as evidence for a higher impact that people's positive shared attitudes have on interpersonal liking. In this case, I argue that it can even be interpreted as a positivity advantage in a narrower sense. Based on our findings, a person who shares someone's positive attitudes will have a likability advantage over a person who shares someone's negative attitudes, as the former will be liked more than the latter.

This valence asymmetry could be explained by attitude strength, attitudes' self-revelation value, and a general preference for likers (Amabile, 1983; Amabile & Glazebrook, 1982; Folkes & Sears, 1977). Of note, participants in our studies indicated that their likes were stronger than their dislikes, which would suggest a positivity advantage on its own in the sense of a higher impact of positive than of negative attitudes. This is not in line with the prominent research stating that

negativity is stronger than positivity (e.g., Baumeister et al., 2001; Kanouse & Hanson, 1972). I discuss this finding in the limitations and future directions section (see 7.4.2).

Informativeness and Diagnosticity. Most relevant for our explanation of why the positivity advantage for the similarity effect occurred, we also identified that people perceived their likes to be more self-revealing and thereby more informative about their true self than their dislikes. We explained this cognitive-ecologically based on the higher diversity of negative attitudes in the ecology, leading to a greater attitude ambiguity (see also Alves et al., 2017b).

The idea of greater attitude ambiguity was similarly forwarded by Gershoff et al. (2007) as an explanation for positivity advantages in agent evaluation (see also 2.2.2). They state that people perceive agreement on loved (i.e., liked, positive) compared to hated (i.e., disliked, negative) alternatives as more informative because of the greater attribute ambiguity of hated alternatives. That is, there is higher uncertainty regarding which attributes underlie hated alternatives, rendering them less informative and, therefore, less diagnostic for agent evaluation.

Their idea of greater attribute ambiguity translates to the negativity diversity property of the EvIE model (Unkelbach et al., 2019). However, we did not investigate this process. Thus, we do not know whether the higher self-revelation value of positive attitudes and the higher likability based on shared positive attitudes were caused by positive attitudes' lower ambiguity and diversity.

7.2.3 Inferred Knowledge From Positive and Negative Attitudes

In Chapter 6, we followed up on the revelation finding in Chapter 5 and demonstrated that people believe to know others better based on their positive attitudes (i.e., their likes) than based on their negative attitudes (i.e., their dislikes). Here, we widened the scope of attitude domains compared to the paper presented in Chapter 5 and showed the higher anticipated knowledge based on people's likes across 16 different attitude domains (e.g., music genres, subjects in school, cuisines, social media platforms, literature styles, etc.). Similar to the interpretation of the main finding regarding the similarity effect (Chapter 5, see also 7.2.2), I interpret the demonstrated knowledge asymmetry in Chapter 6 as a positivity advantage in impression formation and person perception.

This suggests another case in which positive attitudes have more impact, resulting from their higher informativeness.

Informativeness and Diagnosticity. Compared to the two previously discussed empirical investigations (see 7.2.1, 7.2.2), the scope of the manuscript presented in Chapter 6 comes closest to positive versus negative attributes' informativeness and diagnosticity. That is, more inferred knowledge, in comparison to the previous research, most directly translates to higher informativeness.

Similar to Gershoff et al. (2007), we argued that the higher informativeness of positive attitudes (leading to the greater inferred knowledge) results from their lower ambiguity, which results in higher certainty regarding which reasons underlie the positive attitudes. This finding aligns with Unkelbach et al.'s (2020) notion that "positive information has more influence when inferences (e.g., halo effects) from presented information are investigated" (p. 172). Here, people made inferences regarding the reasons underlying people's attitudes.

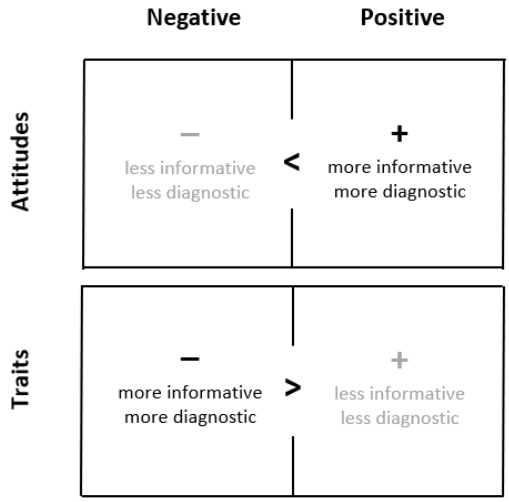
7.2.4 Traits' and Attitudes' Differential Informativeness – An Overview

The full picture of empirical evidence suggests that traits are more informative if they are negative, while people's attitudes are more informative if they are positive. To illustrate, I summarized these differentiated findings in Figure 7.1.

Crucially, I propose that differences in the informativeness of positive and negative attitudes are the key factor in explaining the heterogeneous results regarding negativity and positivity advantages. This matches the prominent way to explain valence asymmetries in impression formation and person perception in terms of differential informativeness and diagnosticity of positive and negative information (see also 2.2). Different from past research, I explain positive attitudes' higher informativeness from a cognitive-ecological perspective, assuming higher diversity on the negative side.

Figure 7.1

Overview of the Differential Informativeness and Diagnosticity of People's Traits and Attitudes



Note. Illustration of when positive and when negative attributes are assumed to be more informative, based on the empirical work presented in this dissertation. "Positive" (+) is more informative than "negative" (–) for attitudes (top two squares; Chapters 5 and 6), while "negative" (–) is more informative than "positive" (+) for traits (bottom two squares; Chapter 4).

7.3 Why the Findings Are Intriguing – Discussing Opposite Predictions

Using the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019), and thereby considering the ecological property of differential diversity and similarity of people's attributes (i.e., traits and attitudes), led to different predictions (see Chapters 5 and 6) than those raised in past research. In the following, I discuss which predictions follow from other accounts, models or theories. Lastly, I suggest how the opposite predictions can be reconciled with our work.

7.3.1 Similarity Effect

Contrary to our findings, past research suggested a negativity advantage for people's shared attitudes on liking (Bosson et al., 2006; Weaver & Bosson, 2011; see 2.1.2). Indeed, based on established theories and principles such as *social identity theory* (Tajfel & Turner, 1979) and research

on gossip (Dunbar, 2004; Foster, 2004), one could have expected that sharing negative attitudes creates a stronger bond between people. Gossip refers to the exchange of information about other people (Foster, 2004), which can also communicate trust and strengthen social bonds and closeness between the people gossiping (Baumeister et al., 2004; Kowalski, 2002; Leaper & Holliday, 1995). *Social identity theory* would predict that exchanging negative attitudes towards other people (i.e., negative gossip), in particular, can facilitate social bonding and also liking (Dunbar, 2004). This follows because it boosters self-esteem through downward social comparisons, reinforces in-group identities (Tajfel & Forgas, 2000; Tajfel & Turner, 1979), and thereby satisfies people's fundamental need to belong (Baumeister & Leary, 1995).

7.3.2 Attitudes' Revelation Value and Informativeness

Concerning attitudes' revelation value, a social cognitive perspective could have predicted that people's negative attitudes (i.e., their dislikes) should be more revealing and thereby more informative. People more frequently show positive behaviors (e.g., expressing positive attitudes) due to social desirability and impression management concerns (e.g., Blumberg, 1972; Tesser & Rosen, 1975). Consequently, negative behavior (e.g., expressing negative attitudes) should stand out by contrast and attract more attention (Kellerman, 1984; see also 2.2.1). Indeed, past research suggested that people rarely express critical attitudes towards other people in "relaxed social settings" and day-to-day conversations (Dunbar et al., 1997, p. 231).

In Chapter 2, I referred to negative behaviors in the social context as non-normative behaviors (see 2.2.1). This relates to Fiske (1980) who suggested a stronger weight of rare behaviors as they differentiate better from the ground of common behaviors. Similarly, following classic attribution theories such as *correspondent inference theory* (Jones & Davis, 1965), learning of someone's positive attitudes should not be informative and revealing regarding this person's personality, because it does not allow conclusions about whether this positive attitude reflects this person's personality or is just expressed due to social desirability concerns (Jones & Davis, 1965; Kelley, 1973; Skowronski & Carlston, 1989). Accordingly, people who express negative attitudes do so

despite the risk of a negative evaluation that might follow as a consequence of expressing something negative (Folkes & Sears, 1977). This should allow stronger inferences about this person's personality or disposition, as revealing a negative attitude appears more self-disclosing (Turner et al., 2003). Consequently, people should have the impression that they learn more about another person based on their expressed dislike. Of note, Weaver and Bosson (2011) tested this assumption and showed that people have the feeling of knowing others better based on shared negative attitudes towards a third party.

7.3.3 How To Reconcile

How can these ideas be reconciled with the higher informativeness and anticipated knowledge based on positive attitudes that we showed in Chapters 5 and 6?

Person Versus Non-Person Attitudes. First, I suggest that different processes might be at play for attitudes regarding third parties (i.e., person-related attitudes) and attitudes about non-person attitude objects (e.g., food, subjects in school, leisure activities, etc.). The former were the focus of past research (i.e., Bosson et al., 2006; Weaver & Bosson, 2011). That the kind of attitude (e.g., person vs. non-person) may indeed make a difference for the effect is supported by the finding that people recalled sharing more positive than negative shared attitudes about non-person objects (e.g., activities, movies) with their closest friends and relationship partners (Bosson et al., 2006). Given that there seems to be a difference between person and non-person attitudes, I argue that social-desirability concerns are more relevant for person-related attitudes than for attitudes about non-persons. Speaking critically about a third party will likely shed a negative light on the person revealing this negative attitude (see also Folkes & Sears, 1977; Amabile, 1983; Amabile & Glazebrook, 1982). This negative inference might be less pronounced if the attitude concerns attitudes towards non-person objects such as the dislike of a certain dish.

Such a prediction is also supported by research on spontaneous trait transference (e.g., Skowronski et al., 1998). A typical finding is that the traits people (in the following called *communicator*) use to describe others are transferred to the communicators themselves. In other

words, communicators are perceived to possess the traits that they used to describe other people (e.g., Skowronski et al., 1998). Consequently, if a person gossips and describes a third party as envious, cruel, or devious, this person may be perceived as envious, cruel, or devious themself. Naturally, such a transference cannot happen in non-person related attitude domains, as people do not use traits to describe non-person attitude objects such as movies, music genres, or literature styles.

Social Context and Self-Disclosure. Second, relatedly, exchanging attitudes about people (either shared by the other person or not) includes a social component (e.g., gossip; Baumeister et al., 2004; Dunbar, 2004; Foster, 2004). I argue that social-desirability concerns should occur primarily in social contexts and when people assume that others deliberately reveal and disclose their likes (vs. dislikes). This concerns an act of self-disclosure. Self-disclosure is associated with liking on its own (for reviews, see Collins & Miller, 1994; Derlega et al., 2008). It is widely studied in the context of interpersonal liking and has various effects on person perception (e.g., Sprecher et al., 2013; Vittengl & Holt, 2000). Thus, ratings of familiarity in studies where the social context is salient will likely be influenced by means of self-disclosure (see Weaver & Bosson, 2011). However, in our studies (see Chapter 5), participants got minimal information about the target person (i.e., one or two likes/dislikes) and no social context was made salient. They were asked to imagine meeting someone and plainly "learned" that this person likes versus dislikes various things. Similarly, to assess attitudes' revelation value, we asked how well other people would be able to understand what the participant is like if they "learned" about their likes (vs. dislikes). Thus, based on the instructions, participants had no information about whether the other person deliberately decided to reveal a certain like or dislike. They might as well learn about the attitudes from other people.

I argue that these basic instructions allowed a likability assessment relatively independent of social influences such as social desirability. These influences due to impression management concerns might distort or even conceal the actual informativeness of people's attitudes. The theories presented above to derive why sharing negative attitudes bonds stronger include that people make

assumptions about *why* other people show certain behaviors (e.g., why they reveal a like or a dislike), and explain higher informativeness in the light of these assumptions that include motivational concerns. Our approach, however, may have revealed effects of the information ecology that may have been concealed in past research. Thereby, I consider our approach a "purer" test of attitudes' informativeness. If one accepts the higher diversity of negativity as an inherent property (Alves et al., 2017b) rooted in the information ecology, then it should follow that people's positive attitudes are more informative than their negative attitudes *regarding the underlying reasons*. We provided evidence for this latter idea in Chapter 6.

7.4 Limitations and Future Directions

Each empirical chapter (i.e., Chapters 4 to 6) provides a project-specific limitations section featuring the most central limitations of the paper or manuscript in brief. In the following, I focus on the most relevant ones, discuss these in more detail, and provide further aspects beyond those already mentioned. Crucially, I also discuss how these aspects might lead to ideas for future research and directions.

Overall, our empirical evidence for valence asymmetries is limited to first impressions and initial liking. However, social life and interpersonal encounters are full of contexts where first impressions matter, including social media and online and offline dating (e.g., Tidwell et al., 2013). Every relationship, no matter what kind, starts with a first impression. Thus, the present work lays the foundation for extending these insights to later stages of interpersonal contact.

7.4.1 Traits in Dating

We investigated the differential impact of positive and negative traits in scenarios where people only got information about one (positive or negative) trait of another person. While this allowed an internally valid first test of whether the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019) applies to traits in dating, the next step would be to investigate how positive and negative traits that differ in their similarity on a structural level behave in relation to each other in more realistic dating scenarios. In line with classic research on the differential weighting of positive

and negative traits in dating (see 1.1.1), a subsequent study could present potential dating partners with multiple positive and negative traits (i.e., traits to look for and traits to avoid). As evident from the presented work in Chapter 4, these traits do not only vary in their valence (i.e., positive vs. negative), but also on a structural level. That is, some traits are more similar than others to all other traits of the same valence. This could provide a more nuanced perspective on the "negative traits weigh more than positive traits" notion (e.g., Anderson, 1965; Asch, 1946; Hamilton & Huffman, 1971; Hamilton & Zanna, 1974; Vonk, 1993) and widen the scope from "negative versus positive" traits to "differentially similar negative versus differentially similar positive" traits.

Based on the correlation between trait importance and trait similarity that we found (see Chapter 4), it is likely that neither all negative traits nor all positive traits are weighed equally strong. More specifically, one prediction would be that a central negative trait (i.e., a negative trait with a low average distance and, thus, a high similarity to all other negative traits; e.g., "crude", see Table 4.2) would influence the overall impression more strongly than a less central (i.e., less similar and, thereby, also less important) negative trait. Potentially, such an interplay between positive and negative traits varying in their centrality (similarity; and thereby in their power to co-activate other traits) could be modelled using similar network models as suggested by Dalege et al. (2016, 2017).

As a follow-up, it would be interesting to examine whether the stronger influence of a negative trait compared to positive traits can be outweighed if "enough" other positive traits are presented on the dating profile. If a higher number of positive traits could indeed balance the impact of one negative trait out, the number of positive traits necessary to outweigh a negative one should then also depend on the centrality and importance of the negative trait. The more central and important the negative trait is, the more positive traits will likely be needed.

A potential criticism of this suggested research might be that online dating profiles featuring negative traits are unrealistic, as people want to present themselves in a favorable light (e.g., Fiore et al., 2008; Toma & Hancock, 2010). To avoid this criticism, one could change the theme and investigate the interplay of positive and negative traits in hypothetical interactions between friends.

For example, the paradigm could be as follows: Participants should imagine talking to one of their friends about potential people to date. This friend would then provide a list that varies in the amount and centrality of positive and negative traits. This might provide a more ecologically valid approach. It might seem more realistic that a friend would name both positive and negative traits of another person.

Another interesting line of research to follow up on the cognitive-ecological approach would be to study sequential evaluations of dating profiles displaying positive (and negative) traits. Negative traits are more diverse than positive traits in the information ecology (see 3.1.2), and past research showed that people make evaluations mainly based on how options differ from previously encountered options (i.e., based on unique features; Hodges, 2005; Houston et al., 1989; Houston & Sherman, 1995; Tversky, 1977; see also 3.2). Thus, I predict that an evaluation disadvantage for later-encountered dating profiles should follow. Similar to the presented work in Chapter 4, this evaluation disadvantage could for example be assessed as the probability of swiping left (i.e., no option to date, negative evaluation) or right (i.e., option to date, positive evaluation). Plotting the probability of swiping right should then reveal a decrease in the probability with increasing order of presentation. Looking at related research in online dating, one study so far already showed a decrease in the acceptance of partners when dating online with increasing sequential order (Pronk & Denissen, 2020). Acceptance of partners was measured as a click on a green heart (i.e., equivalent to the swipe-right suggestion). However, they explained their finding with a rejection mindset following choice overload, and participants made their decisions based on profile pictures. I, however, suggest a cognitive-ecological explanation. Such a study would join the line of recent studies who applied the cognitive-ecological perspective to real-world phenomena in social perception such as the negative perception of minorities and social outgroups (Alves et al., 2018; Woitzel & Alves, 2024) or a description advantage for later-encountered individuals (Koch et al., 2024).

7.4.2 Positive and Negative Attitudes

In our studies on shared and unshared positive and negative attitudes, participants sampled their own likes and dislikes (Chapter 5). We argue that this ecologically valid stimulus sample is a strength of our work, because these likes and dislikes reflect people's relevant attitudes. With such an approach, we cannot rule out that the asymmetry in the strength of participants' positive and negative attitudes resulted because they (unconsciously) systematically listed stronger positive than negative attitudes. I do not consider this to questions the higher impact of positive than negative attitudes for interpersonal liking in general. Attitude valence still remained a significant predictor of liking when we controlled for differential strength of positive and negative attitudes (see 5.4.2). However, to address this potential concern, a future study could match people's positive and negative traits regarding their strength. In any case, the cognitive-ecological argument that shared likes bond stronger than shared dislikes due to their higher informativeness should still show.

It might also be interesting to investigate the interplay of shared attitudes' valence and their frequency (i.e., how common or rare attitudes are; see Alves, 2018). We showed that sharing positive attitudes leads to more liking than sharing negative attitudes, and Alves (2018) showed that sharing rare attitudes leads to more liking than sharing common attitudes. Combining both research lines, one prediction would be that sharing rare positive attitudes should create the most liking. From a cognitive-ecological perspective, this should indeed follow. According to the positivity frequency principle (see 3.1.1), to meet someone who shares one's positive attitudes should occur more frequently than to meet someone who shares one's negative attitudes. Preliminary unpublished data from our related research empirically supports this. Thus, to meet someone who shares a positive attitude that is rare should be particularly unusual. Given the assumption that positive attitudes reveal more about the person as they are more informative due to their lower ambiguity, this combination should foster particularly strong bonding. Supposedly, following the same reasoning, sharing negative common attitudes should provide the least amount of liking. Neither negative nor common attitudes should be particularly informative from a cognitive-ecological perspective.

Whether and how sharing common positive or rare negative attitudes differs in its potential to elicit liking is an empirical question open for investigation.

As stated, we did not test whether two people who share a like are factually more similar than two people who share a dislike. We were primarily interested in the effect of perceived rather than actual similarity on liking, as perceived similarity was also shown to be more important for interpersonal liking than actual similarity (Luo & Zhang, 2009; Tidwell et al., 2013). However, the EvIE model (Unkelbach et al., 2019) and negative attitudes' higher ambiguity regarding the underlying reasons would strongly suggest higher actual similarity based on shared positive attitudes, at least regarding the underlying reasons.

Relatedly, although we suggest the higher diversity of negative attributes regarding their underlying reasons to be the mechanism why people anticipate having more knowledge about others based on their likes (Chapter 6), we did not test whether the reasons underlying dislikes are factually more diverse than the reasons underlying likes. To address these concerns, a first study could, for example, present a list of attitude objects and ask participants to tick which they like and which they dislike. Next, the study could ask them to provide several reasons for why they like the ticked liked object and several reasons for why they dislike the ticked disliked object. A next study could then present other participants with pairs of reasons of two people with the same like (dislike) and ask them to rate whether the provided reasons are similar to each other (e.g., using spatial arrangement; Hout et al., 2013; Koch, Alves, et al., 2016; Koch et al., 2022) or even the same. The prediction is a lower diversity and higher similarity of the reasons that two people indicate for why they like certain attitude objects. Such a test would also ensure actual consensus regarding underlying reasons beyond the differential projection of (potentially idiosyncratic) reasons for likes versus dislikes (see Study 4 in Chapter 5; 5.6).

Lastly, there might be domains in which sharing negative attitudes bonds stronger or in which knowing another person's dislikes is more informative. For example, people might hold stronger aversions against certain politicians than preferences for other politicians, and this might render

shared dislikes for politicians more important for interpersonal liking than shared likes for politicians. Future research should investigate whether attitude domains that concern people's values and political ideologies produce deviating patterns. Similarly, person domains in general (i.e., attitudes about third parties) might produce other effects than non-person domains (see 7.3.3, for a detailed discussion). Subsequent studies could manipulate whether the social context is salient and thereby systematically test the ideas raised above concerning potential influences of social desirability and impression management concerns.

7.5 Practical Implications

Our findings contribute to the literature on valence asymmetries in impression formation and person perception in that we provide a cognitive-ecological explanation for why people's positive attitudes are more informative than their negative attitudes. This demonstrates a higher impact of positive information in a domain in which negative information was previously shown to dominate. Our predictions based on negative traits' and attitudes' higher diversity (see also Unkelbach et al., 2019, 2020) also provide real-world insights. In the following, I discuss practical implications for dating app developers, dating app users and for first interpersonal encounters.

7.5.1 Dating Apps

Negative traits are more diverse, and people agree less on what to avoid in a potential partner (see Chapter 4). Consequently, to help decide which of various persons matches someone else, focusing on these person's negative traits might be more informative and also more promising (see also 7.2.1). Dating app developers could make use of this by implementing the requirement to display not only positive but also negative traits on one's profile. The app's slogan might be "find the one out of many," and it should be advertised by educating users about the higher quality of matches that results if the match is grounded on both partners' ideas of dealbreakers rather than dealmakers. Of note, the advice concerning the display of positive versus negative *attitudes* (i.e., likes and dislikes) would be the opposite; that is, people should rather reveal likes rather than dislikes, if the goal was to attract compatible partners (see 6.9.2).

Another interesting implication concerns the self-presentation on dating profiles. Positive traits are less diverse and more similar. As our analysis on the content level in Chapter 4 revealed and as depicted in the top ten positive traits (see Table 4.2), people look for trustworthy, kind, loyal, genuine, and understanding partners. Consequently, displaying these traits on one's dating profile will not distinguish one's profile from all other profiles. Given that the popularity of online dating continues to rise (Hobbs et al., 2017), it gets increasingly important to set oneself apart from the large number of other dating profiles that the average person sees per dating app visit. The cognitive-ecological approach suggests two ways for differentiation: First, to think of positive traits that are unusual and likely not displayed by many other dating app users; second, if the main aim was to stand out, to display a supposedly negative trait. Crucially, similar to the typical job interview recommendation, this should be no dealbreaker but a trait that could potentially even be interpreted in a positive manner. As our data suggests, negative traits are highly diverse, and some of these (e.g., chaotic) might not be seen as negative per se by all dating app users. Of note, displaying a trait like "chaotic" would also ensure that all people for whom this is a dealbreaker are filtered out, thereby enhancing the chances of finding a good match. This could be implemented nicely in the above-mentioned dating app.

Although a disadvantage for later encountered dating profiles was not empirically tested in this dissertation (but see Alves et al., 2018; Koch et al., 2024; Pronk & Denissen, 2020; Woitzel & Alves, 2024, for demonstrations of similar disadvantages), I briefly mention a practical implication of this prediction. That is, dating app developers should offer paid options for their users that ensures they appear early when other people open the app and start swiping, and dating app users should pay for this option, at least if their goal is to get a large number of matches.

7.5.2 Interpersonal Encounters

Our research suggests that people's positive attitudes are more revealing and informative about a person than their negative attitudes, and that this partly explains shared likes' stronger potential to create initial liking. People might use these insights strategically and nuanced depending

on what they want to achieve. If the goal is to have superficial conversations and engage in small talk at a party without a stronger interest in the other person, the topics can focus on the own and the other person's dislikes. If there is interest in getting to know a person better and learning something about the person, asking about this person's likes would be advisable, as they should allow for stronger inferences (a) regarding this person's attitudes and personality and (b) regarding interpersonal similarity.

7.6 Concluding Remarks

As suggested by the Evaluative Information Ecology (EvIE) model (Unkelbach et al., 2019), people's negative traits are more diverse and less similar than their positive traits. Similarly, people's negative attitudes are more diverse and ambiguous than their positive attitudes, because there are more reasons to dislike than to like something. For traits in dating, this asymmetry makes negative traits *more* informative. For how people perceive others who hold positive versus negative attitudes and how this influences how people perceive others who share their positive versus negative attitudes, the same asymmetry makes negative attitudes *less* informative. We showed that people's likes are more informative and revealing than people's dislikes. This suggests a case of a higher impact of positive than negative information, which was rarely found in past research in this field.

This dissertation contributes to the existing research on impression formation and person perception in two ways. First, it demonstrates positivity advantages in people's perceptions and impressions and shows that negativity does not always dominate. Second, it shows that moving beyond factors that lie within the individual and starting to consider the structure of the information ecology is worthwhile. This ecological perspective allows for testable predictions that cannot be derived from motivational or attributional theories. Crucially, it offers a new perspective on positivity and negativity advantages in person perception and impression formation.

References

Abele, A. E., & Brack, S. (2013). Preference for other persons' traits is dependent on the kind of social relationship. *Social Psychology*, *44*(2), 84–94. https://doi.org/10.1027/1864-9335/a000138

Ajzen, I. (1974). Effects of information on interpersonal attraction: Similarity versus affective value. *Journal of Personality and Social Psychology*, *29*(3), 374–380. https://doi.org/10.1037/h0036002

Allport, G. W. (1935). Attitudes. In C. M. Murchison (Ed.), *Handbook of social psychology*. University Press.

Allport, G. W. (1937). *Personality: A psychological interpretation*. Holt, Rinehart & Winston.

Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley.

Alves, H. (2018). Sharing rare attitudes attracts. *Personality and Social Psychology Bulletin*, *44*(8), 1270–1283. https://doi.org/10.1177/0146167218766861

Alves, H., Högden, F., Gast, A., Aust, F., & Unkelbach, C. (2020). Attitudes from mere co-occurrences are guided by differentiation. *Journal of Personality and Social Psychology*, *119(3), 560*–581. https://doi.org/10.1037/pspa0000193

Alves, H., Koch, A., & Unkelbach, C. (2016). My friends are all alike – the relation between liking and perceived similarity in person perception. *Journal of Experimental Social Psychology*, *62*, 103–117. https://doi.org/10.1016/j.jesp.2015.10.011

Alves, H., Koch, A., & Unkelbach, C. (2017a). The "common good" phenomenon: Why similarities are positive and differences are negative. *Journal of Experimental Psychology: General*, *146*(4), 512–528. https://doi.org/10.1037/xge0000276

Alves, H., Koch, A., & Unkelbach, C. (2017b). Why good is more alike than bad: Processing implications. *Trends in Cognitive Sciences*, *21*(2), 69–79. https://doi.org/10.1016/j.tics.2016.12.006

Alves, H., Koch, A., & Unkelbach, C. (2018). A cognitive-ecological explanation of intergroup biases. *Psychological Science*, *29*(7), 1126–1133. https://doi.org/10.1177/0956797618756862

Alves, H., Unkelbach, C., Burghardt, J., Koch, A. S., Krüger, T., & Becker, V. D. (2015). A density explanation of valence asymmetries in recognition memory. *Memory & Cognition*, *43*(6), 896–909. https://doi.org/10.3758/s13421-015-0515-5

Alves, H., Yzerbyt, V., & Unkelbach, C. (2024). Attitude formation in more- and less-complex social environments. *Personality and Social Psychology Bulletin*, 0(0), 1–15. https://doi.org/10.1177/01461672241235387

Amabile, T. M. (1983). Brilliant but cruel: Perceptions of negative evaluators. *Journal of Experimental Social Psychology*, *19*(2), 146–156. https://doi.org/10.1016/0022-1031(83)90034-3

Amabile, T. M., & Glazebrook, A. H. (1982). A negativity bias in interpersonal evaluation. *Journal of Experimental Social Psychology*, *18*(1), 1–22. https://doi.org/10.1016/0022-1031(82)90078-6

Anderson, N. H. (1965). Averaging versus adding as a stimulus-combination rule in impression formation. *Journal of Experimental Psychology*, *70*(4), 394–400. https://doi.org/10.1037/h0022280

Anderson, N. H. (1974). Cognitive algebra: Integration theory applied to social attribution. *Advances in Experimental Social Psychology*, *7*, 1–101. https://doi.org/10.1016/S0065-2601(08)60035-0

Anderson, N. H. (1981). *Foundations of information integration theory*. Academic Press.

Apostolou, M., & Eleftheriou, C. (2022). What constitutes bad flirting: An explorative study of dealbreakers. *Personality and Individual Differences*, *194*, 111665. https://doi.org/10.1016/j.paid.2022.111665

Aristotle (1999). *Nicomachean ethics* (W. D. Ross, Trans.). Batoche Books. (Original work published 350 B.C.E)

Aron, A., Steele, J. L., Kashdan, T. B., & Perez, M. (2006). When similars do not attract: Tests of a prediction from the self-expansion model. *Personal Relationships*, *13*(4), 387–396. https://doi.org/10.1111/j.1475-6811.2006.00125.x

Asch, S. E. (1946). Forming impressions of personality. The *Journal of Abnormal and Social Psychology*, *41*(3), 258–290. https://doi.org/10.1037/h0055756

Asch, S. E. (1952). *Social psychology.* Prentice-Hall. https://doi.org/10.1037/10025-000

Asch, S. E., & Zukier, H. (1984). Thinking about persons. *Journal of Personality and Social Psychology*, *46*(6), 1230–1240. https://doi.org/10.1037/0022-3514.46.6.1230

Augustine, A. A., Mehl, M. R., & Larsen, R. J. (2011). A positivity bias in written and spoken English and its moderation by personality and gender. *Social Psychological and Personality Science*, *2*(5), 508–515. https://doi.org/10.1177/1948550611399154

Back, M. D., Schmukle, S. C., & Egloff, B. (2008). Becoming friends by chance. *Psychological Science*, *19*(5), 439–440. https://doi.org/10.1111/j.1467-9280.2008.02106.x

Bahns, A. J., Crandall, C. S., Gillath, O., & Preacher, K. J. (2017). Similarity in relationships as niche construction: Choice, stability, and influence within dyads in a free choice environment. *Journal of Personality and Social Psychology*, *112*(2), 329–355. https://doi.org/10.1037/pspp0000088

Baldwin, M., Alves, H., & Unkelbach, C. (2024). A cognitive–ecological approach to temporal self-appraisals. *Journal of Personality and Social Psychology*, *126*(5), 779–803. https://doi.org/10.1037/pspa0000369

Balota, D. A., Yap, M. J., Hutchison, K. A., Cortese, M. J., Kessler, B., Loftis, B., Neely, J. H., Nelson, D. L., Simpson, G. B., & Treiman, R. (2007). The English lexicon project. *Behavior Research Methods*, *39*(3), 445–459. https://doi.org/10.3758/BF03193014

Bargh, J. A., Chaiken, S., Govender, R., & Pratto, F. (1992). The generality of the automatic attitude activation effect. *Journal of Personality and Social Psychology*, *62*(6), 893–912. https://doi.org/10.1037/0022-3514.62.6.893

Barrett, L. F. (2006). Are emotions natural kinds? *Perspectives on Psychological Science, 1*(1), 28–58. https://doi.org/10.1111/j.1745-6916.2006.00003.x

Bassok, M., & Trope, Y. (1984). People's strategies for testing hypotheses about another's personality: Confirmatory or diagnostic? *Social Cognition*, *2*(3), 199–216. https://doi.org/10.1521/soco.1984.2.3.199

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2014). Fitting linear mixed-effects models using lme4 (version 1.1.26). *Journal of Statistical Software, 67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, *5*(4), 323–370. https://doi.org/10.1037/1089-2680.5.4.323

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529. https://doi.org/10.1037/0033-2909.117.3.497

Baumeister, R. F., Zhang, L., & Vohs, K. D. (2004). Gossip as cultural learning. *Review of General Psychology*, *8*(2), 111–121. https://doi.org/10.1037/1089-2680.8.2.111

Berger, C. R. (1973). Task performance and attributional communication as determinants of interpersonal attraction. *Speech Monographs, 40*(4), 280–286. https://doi.org/_10.1080/03637757309375805

Berscheid, E. S. (1985). Interpersonal attraction. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (pp. 413–483). Random House.

Berscheid, E., & Walster, E. (1974). Physical attractiveness. *Advances in Experimental Social Psychology,* 7, 157–215. https://doi.org/10.1016/S0065-2601(08)60037-4

Blumberg, H. H. (1972). Communication of interpersonal evaluations. *Journal of Personality and Social Psychology*, *23*(2), 157–162. https://doi.org/10.1037/h0033027

Bochner, A. P. (1991). On the paradigm that would not die. *Annals of the International Communication Association, 14*(1), 484–491. https://doi.org/10.1080/23808985.1991.11678803

Bocian, K., Baryla, W., Kulesza, W., Schnall, S., & Wojciszke, B. (2018). The mere liking effect: Attitudinal influences on attributions of moral character. *Journal of Experimental Social Psychology*, *79, 9–20*. https://doi.org/10.1016/j.jesp.2018.06.007

Boer, D., Fischer, R., Strack, M., Bond, M., Lo, E., & Lam, J. (2011). How shared preferences in music create bonds between people: Values as the missing link. *Personality and Social Psychology Bulletin*, *37*(9), 1159–1171. https://doi.org/10.1177/0146167211407521

Bond, M., Byrne, D., & Diamond, M. J. (1968). Effect of occupational prestige and attitude similarity on attraction as a function of assumed similarity of attitude. *Psychological Reports, 23*(3_suppl), 1167–1172. https://doi.org/10.2466/pr0.1968.23.3f.1167

Bosson, J. K., Johnson, A. B., Niederhoffer, K., & Swann, W. B., Jr. (2006). Interpersonal chemistry through negativity: Bonding by sharing negative attitudes about others. *Personal Relationships*, *13*(2), 135–150. https://doi.org/10.1111/j.1475-6811.2006.00109.x

Botwin, M. D., Buss, D. M., & Shackelford, T. K. (1997). Personality and mate preferences: Five factors in mate selection and marital satisfaction. *Journal of Personality, 65*, 107–136. https://doi.org/10.1111/j.1467-6494.1997.tb00531.x

Boucher, J., & Osgood, C. E. (1969). The pollyanna hypothesis. *Journal of Verbal Learning and Verbal Behavior*, *8*(1), 1–8. https://doi.org/10.1016/S0022-5371(69)80002-2

Brans, K., Koval, P., Verduyn, P., Lim, Y. L., & Kuppens, P. (2013). The regulation of negative and positive affect in daily life. *Emotion*, *13*(5), 926–939. https://doi.org/10.1037/a0032400

Brewer, M. B. (1988). A dual process model of impression formation. In T. K. Srull & R. S. Wyer, Jr. (Eds.), *Advances in social cognition: A dual process model of impression formation* (pp. 1–36). Psychology Press.

Briscoe, M. E., Woodyard, H. D., & Shaw, M. E. (1967). Personality impression change as a function of the favorableness of first impressions. *Journal of Personality*, *35*(2), 343–357. https://doi.org/10.1111/j.1467-6494.1967.tb01433.x

Brown, R. (1986). *Social psychology: The second edition*. The Free Press.

Bruckmüller, S., & Abele, A. E. (2013). The density of the big two. *Social Psychology*, *44*(2), 63–74. https://doi.org/10.1027/1864-9335/a000145

Brunswik, E. (1955). Representative design and probabilistic theory in a functional psychology. *Psychological Review*, *62*(3), 193–217. https://doi.org/10.1037/h0047470

Brunswik, E. (1956). *Perception and the representative design of psychological experiments* (2nd ed.). University of California Press.

Bryan, A. D., Webster, G. D., & Mahaffey, A. L. (2011). The big, the rich, and the powerful: Physical, financial, and social dimensions of dominance in mating and attraction. *Personality and Social Psychology Bulletin*, *37*(3), 365–382. https://doi.org/10.1177/0146167210395604

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*(1), 3–5. https://doi.org/10.1177/1745691610393980

Burnstein, E. (1967). Sources of cognitive bias in the representation of simple social structures: Balance, minimal change, positivity, reciprocity, and the respondent's own attitude. *Journal of Personality and Social Psychology, 7*(1), 36–48. https://doi. org/10.1037/h0024926

Buss, D. M. (1988). The evolution of human intrasexual competition: Tactics of mate attraction. *Journal of Personality and Social Psychology*, *54*(4), 616–628. https://doi.org/10.1037/0022-3514.54.4.616

Buss, D. M (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, *12*(1), 1–14. https://doi.org/10.1017/S0140525X00023992

Buss, D. M., & Barnes, M. (1986). Preferences in human mate selection. *Journal of Personality and Social Psychology*, *50*(3), 559–570. https://doi.org/10.1037/0022-3514.50.3.559

Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, *100*(2), 204–232. https://doi.org/10.1037/0033-295X.100.2.204

Bybee, J. L. (2010). Markedness: Iconicity, economy, and frequency. In J. J. Song (Ed.), *The oxford handbook of linguistic typology* (pp. 131–147). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199281251.013.0008

Byrne, D. (1961). Interpersonal attraction and attitude similarity. *The Journal of Abnormal and Social Psychology*, *62*(3), 713–715. https://doi.org/10.1037/h0044721

Byrne, D. (1969). Attitudes and attraction. *Advances in Experimental Social Psychology, 4*, 35–89. https://doi.org/10.1016/S0065-2601(08)60076-3

Byrne, D. (1971). *The attraction paradigm*. Academic Press.

Byrne, D. (1997). An overview (and underview) of research and theory within the attraction paradigm. *Journal of Social and Personal Relationships*, *14*(3), 417–431. https://doi.org/10.1177/0265407597143008

Byrne, D., Baskett, G. D., & Hodges, L. (1971). Behavioral indicators of interpersonal attraction. *Journal of Applied Social Psychology*, *1*(2), 137–149. https://doi.org/10.1111/j.1559-1816.1971.tb00358.x

Byrne, D., & Nelson, D. (1964). Attraction as a function of attitude similarity-dissimilarity: The effect of topic importance. *Psychonomic Science*, *1*(1), 93–94. https://doi.org/10.3758/BF03342806

Byrne, D., & Rhamey, R. (1965). Magnitude of positive and negative reinforcements as a determinant of attraction. *Journal of Personality and Social Psychology*, *2*(6), 884–889. https://doi.org/10.1037/h0022656

Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of american life: Perceptions, evaluations, and satisfactions*. Russell Sage Foundation.

Carli, L. L., Ganley, R., & Pierce-Otay, A. (1991). Similarity and satisfaction in roommate relationships. *Personality and Social Psychology Bulletin, 17*(4), 419–426. https://doi.org/10.1177/0146167291174010

Carter, N. T., Miller, J. D., & Widiger, T. A. (2018). Extreme personalities at work and in life. *Current Directions in Psychological Science*, *27*(6), 429–436. https://doi.org/10.1177/0963721418793134

Cattell, R. B. (1965). *The scientific analysis of personality.* Aldine-Atherton.

Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology*, *55*, 591–621. https://doi.org/10.1146/annurev.psych.55.090902.142015

Clark, H. H., & Clark, E. V. (1977). *Psychology and language: An introduction to psycholinguistics*. Harcourt Brace Jovanovich.

Clement, R. W., & Krueger, J. (2002). Social categorization moderates social projection. *Journal of Experimental Social Psychology, 38*(3), 219–231. https://doi.org/10.1006/jesp.2001.1503

Clore, G. L., & Byrne, D. (1974). A reinforcement-affect model of attraction. In T. L. Huston (Ed.), *Foundations of interpersonal attraction* (pp. 143–170). Academic Press. https://doi.org/10.1016/B978-0-12-362950-0.50013-6

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum.

Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science*, *1*(3), 98–101. https://doi.org/10.1111/1467-8721.ep10768783

Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking: A meta-analytic review. *Psychological Bulletin*, *116*(3), 457–475. https://doi.org/10.1037/0033-2909.116.3.457

Collisson, B., & Howell, J. L. (2014). The liking-similarity effect: Perceptions of similarity as a function of liking. *The Journal of Social Psychology, 154*(5), 384–400. https://doi.org/10.1080/00224545.2014.914882

Condon, J., W. & Crano, W. D. (1988). Inferred evaluation and the relation between attitude similarity and interpersonal attraction. *Journal of Personality and Social Psychology*, *54*(5), 789–797. https://doi.org/10.1037/0022-3514.54.5.789

Corns, J. (2018). Rethinking the negativity bias. *Review of Philosophy and Psychology*, *9*(3), 607–625. https://doi.org/10.1007/s13164-018-0382-7

Cottrell, C. A., Neuberg, S. L., & Li, N. P. (2007). What do people desire in others? A sociofunctional perspective on the importance of different valued characteristics. *Journal of Personality and Social Psychology*, *92*(2), 208–231. https://doi.org/10.1037/0022-3514.92.2.208

Csajbók, Z., & Berkics, M. (2017). Factor, factor, on the whole, who's the best fitting of all? Factors of mate preferences in a large sample. *Personality and Individual Differences*, *114*, 92–102. https://doi.org/10.1016/j.paid.2017.03.044

Csajbók, Z., & Berkics, M. (2022). Seven deadly sins of potential romantic partners: The dealbreakers of mate choice. *Personality and Individual Differences*, *186*, 111334. https://doi.org/10.1016/j.paid.2021.111334

Csajbók, Z., White, K. P., & Jonason, P. K. (2023). Six "red flags" in relationships: From being dangerous to gross and being apathetic to unmotivated. *Personality and Individual Differences*, *204*, 112048. https://doi.org/10.1016/j.paid.2022.112048

Dalege, J., Borsboom, D., van Harreveld, F., van den Berg, H., Conner, M., & van der Maas, H. L. J. (2016). Toward a formalized account of attitudes: The Causal Attitude Network (CAN) model. *Psychological Review*, *123*(1), 2–22. https://doi.org/10.1037/a0039802

Dalege, J., Borsboom, D., van Harreveld, F., & van der Maas, H. L. J. (2017). Network analysis on attitudes: A brief tutorial. *Social Psychological and Personality Science*, *8*(5), 528–537. https://doi.org/10.1177/1948550617709827

Davis, D. (1981). Implications for interaction versus effectance as mediators of the similarity-attraction relationship. *Journal of Experimental Social Psychology*, *17*(1), 96–117. https://doi.org/10.1016/0022-1031(81)90009-3

De Bruin, E. N. M., & van Lange, P. A. M. (2000). What people look for in others: Influences of the perceiver and the perceived on information selection. *Personality and Social Psychology Bulletin*, *26*(2), 206–219. https://doi.org/10.1177/0146167200264007

Denrell, J. (2005). Why most people disapprove of me: Experience sampling in impression formation. *Psychological Review*, *112*(4), 951–978. https://doi.org/10.1037/0033-295X.112.4.951

Denrell, J., & Le Mens, G. (2007). Interdependent sampling and social influence. *Psychological Review*, *114*(2), 398–422. https://doi.org/10.1037/0033-295X.114.2.398

Derlega V. J., Winstead B. A., & Greene K. (2008). Self-disclosure and starting a close relationship. In S. Sprecher, A. Wenzel, J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 153–174). Psychology Press.

Diamond, J. M. (1997). *Guns, germs, and steel: The fates of human societies*. Norton.

Diener, E., & Diener, C. (1996). Most people are happy. *Psychological Science*, *7*(3), 181–185. https://doi.org/10.1111/j.1467-9280.1996.tb00354.x

Diener, E., Diener, C., Choi, H., & Oishi, S. (2018). Revisiting "most people are happy" – and discovering when they are not. *Perspectives on Psychological Science*, *13*(2), 166–170. https://doi.org/10.1177/1745691618765111

Dijkstra, P., & Barelds, D. P. (2008). Do people know what they want: A similar or complementary partner? *Evolutionary Psychology, 6*(4), 595–602. https://doi.org/10.1177/147470490800600406f

Dodds, P. S., Clark, E. M., Desu, S., Frank, M. R., Reagan, A. J., Williams, J. R., Mitchell, L., Harris, K. D., Kloumann, I. M., Bagrow, J. P., Megerdoomian, K., McMahon, M. T., Tivnan, B. F., & Danforth, C. M. (2015). Human language reveals a universal positivity bias. *Proceedings of the National Academy of Sciences*, *112*(8), 2389–2394. https://doi.org/10.1073/pnas.1411678112

Dunbar, R. I. M. (2004). Gossip in evolutionary perspective. *Review of General Psychology*, *8*(2), 100–110. https://doi.org/10.1037/1089-2680.8.2.100

Dunbar, R. I. M., Marriott, A., & Duncan, N. D. C. (1997). Human conversational behavior. *Human Nature*, *8*(3), 231–246. https://doi.org/10.1007/BF02912493

Eastwick, P. W. (2013). Cultural influences on attraction. In J. A. Simpson & L. Campbell (Eds.), *The Oxford handbook of close relationships* (pp. 161–182). Oxford University Press.

Eastwick, P. W., & Finkel, E. J. (2008). Sex differences in mate preferences revisited: Do people know what they initially desire in a romantic partner? *Journal of Personality and Social Psychology*, *94*(2), 245–264. https://doi.org/10.1037/0022-3514.94.2.245

Eastwick, P. W., Finkel, E. J., & Eagly, A. H. (2011). When and why do ideal partner preferences affect the process of initiating and maintaining romantic relationships? *Journal of Personality and Social Psychology*, *101*(5), 1012–1032. https://doi.org/10.1037/a0024062

Eysenck, H. J. (1953). *The structure of human personality*. Routledge.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191. https://doi.org/10.3758/BF03193146

Fazio, R. H., Eiser, J. R., & Shook, N. J. (2004). Attitude formation through exploration: Valence asymmetries. *Journal of Personality and Social Psychology*, *87*(3), 293–311. https://doi.org/10.1037/0022-3514.87.3.293

Feldman, S. (1966). Motivational aspects of attitudinal elements and their place in cognitive interaction. In S. Feldman (Ed.), *Cognitive consistency: Motivational antecedents and behavioral consequences*. Academic Press.

Feldman, J. M., & Lynch, J. G. (1988). Self-generated validity and other effects of measurement on belief, attitude, intention, and behavior. *Journal of Applied Psychology, 73*(3), 421–435. https://doi.org/10.1037/0021-9010.73.3.421

Feltz, A. (2007). The Knobe Effect: A brief overview. *The Journal of Mind and Behavior*, *28*(3/4), 265–277.

Festinger, L., Schachter, S., & Back, K. W. (1950). *Social pressures in informal groups: A study of human factors in housing*. Harper.

Fiedler, K. (1996). Explaining and simulating judgment biases as an aggregation phenomenon in probabilistic, multiple-cue environments. *Psychological Review*, *103*(1), 193–214. https://doi.org/10.1037/0033-295X.103.1.193

Finch, J. F., & Cialdini, R. B. (1989). Another indirect tactic of (self-) image management: Boosting. *Personality and Social Psychology Bulletin*, *15*(2), 222–232. https://doi.org/10.1177/0146167289152009

Fiore, A. T., Taylor, L., Mendelsohn, G. A., & Hearst, M. (2008). Assessing attractiveness in online dating profiles. In *Proceedings of the SIGCHI conference on human factors in computing systems* (pp. 797–806). https://doi.org/10.1145/1357054.1357181

Fiske, S. T. (1980). Attention and weight in person perception: The impact of negative and extreme behavior. *Journal of Personality and Social Psychology*, *38*(6), 889–906. https://doi.org/10.1037/0022-3514.38.6.889

Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, *11*(2), 77–83. https://doi.org/10.1016/j.tics.2006.11.005

Folkes, V. S., & Sears, D. O. (1977). Does everybody like a liker? *Journal of Experimental Social Psychology*, *13*(6), 505–519. https://doi.org/10.1016/0022-1031(77)90050-6

Forgas, J. P. (2011). Can negative affect eliminate the power of first impressions? Affective influences on primacy and recency effects in impression formation. *Journal of Experimental Social Psychology*, *47*(2), 425–429. https://doi.org/10.1016/j.jesp.2010.11.005

Foster, E. K. (2004). Research on gossip: Taxonomy, methods, and future directions. *Review of General Psychology*, *8*(2), 78–99. https://doi.org/10.1037/1089-2680.8.2.78

Froehlich, D. E., Beausaert, S., & Segers, M. (2021). Similarity-attraction theory and feedback-seeking behavior at work: How do they impact employability? *Studia Paedagogica*, *26*(2), 77–96. https://doi.org/10.5817/SP2021-2-4

Fu, F., Nowak, M. A., Christakis, N. A., & Fowler, J. H. (2012). The evolution of homophily. *Scientific Reports*, *2*(1), 845. https://doi.org/10.1038/srep00845

Fuhrman, R. W., Flannagan, D., & Matamoros, M. (2009). Behavior expectations in cross-sex friendships, same-sex friendships, and romantic relationships. *Personal Relationships*, *16*(4), 575–596. https://doi.org/10.1111/j.1475-6811.2009.01240.x

Garner, W. R. (1974). *The processing of information and structure*. Psychology Press. https://doi.org/10.4324/9781315802862

Gershoff, A. D., Mukherjee, A., & Mukhopadhyay, A. (2003). Consumer acceptance of online agent advice: Extremity and positivity effects. *Journal of Consumer Psychology, 13*(1–2), 161–170. https://doi.org/10.1207/S15327663JCP13-1&2_14

Gershoff, A. D., Mukherjee, A., & Mukhopadhyay, A. (2006). "I love it" or "I hate it"? The positivity effect in stated preferences for agent evaluation. *Marketing Letters*, *17*(2), 103–117. https://doi.org/10.1007/s11002-006-4594-8

Gershoff, A. D., Mukherjee, A., & Mukhopadhyay, A. (2007). Few ways to love, but many ways to hate: Attribute ambiguity and the positivity effect in agent evaluation. *Journal of Consumer Research, 33*(4), 499–505. https://doi.org/10.1086/510223

Gorban, A. N., Smirnova, E. V., & Tyukina, T. A. (2010). Correlations, risk and crisis: From physiology to finance. *Physica A: Statistical Mechanics and its Applications*, *389*(16), 3193–3217. https://doi.org/10.1016/j.physa.2010.03.035

Gräf, M., & Unkelbach, C. (2016). Halo effects in trait assessment depend on information valence: Why being honest makes you industrious, but lying does not make you lazy. *Personality and Social Psychology Bulletin*, *42*(3), 290–310. https://doi.org/10.1177/0146167215627137

Gräf, M., & Unkelbach, C. (2018). Halo effects from agency behaviors and communion behaviors depend on social context: Why technicians benefit more from showing tidiness than nurses do. *European Journal of Social Psychology*, *48*(5), 701–717. https://doi.org/10.1002/ejsp.2353

Grant, A. M., & Schwartz, B. (2011). Too much of a good thing: The challenge and opportunity of the inverted U. *Perspectives on Psychological Science*, *6*(1), 61–76. https://doi.org/10.1177/1745691610393523

Halberstadt, J. (2006). The generality and ultimate origins of the attractiveness of prototypes. *Personality and Social Psychology Review*, *10*(2), 166–183. https://doi.org/10.1207/s15327957pspr1002_5

Halberstadt, J., Pecher, D., Zeelenberg, R., Ip Wai, L., & Winkielman, P. (2013). Two faces of attractiveness: Making beauty in averageness appear and reverse. *Psychological Science*, *24*(11), 2343–2346. https://doi.org/10.1177/0956797613491969

Halberstadt, J., & Rhodes, G. (2000). The attractiveness of nonface averages: Implications for an evolutionary explanation of the attractiveness of average faces. *Psychological Science*, *11*(4), 285–289. https://doi.org/10.1111/1467-9280.00257

Halberstadt, J., & Rhodes, G. (2003). It's not just average faces that are attractive: Computer-manipulated averageness makes birds, fish, and automobiles attractive. *Psychonomic Bulletin & Review*, *10*(1), 149–156. https://doi.org/10.3758/BF03196479

Hamilton, D. L., & Huffman, L. J. (1971). Generality of impression-formation processes for evaluative and nonevaluative judgments. *Journal of Personality and Social Psychology*, *20*(2), 200–207. https://doi.org/10.1037/h0031698

Hamilton, D. L., & Zanna, M. P. (1972). Differential weighting of favorable and unfavorable attributes in impressions of personality. *Journal of Experimental Research in Personality*, *6*(2–3), 204–212.

Hamilton, D. L., & Zanna, M. P. (1974). Context effects in impression formation: Changes in connotative meaning. *Journal of Personality and Social Psychology*, *29*(5), 649–654. https://doi.org/10.1037/h0036633

Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in cross-sex mind reading. *Journal of Personality and Social Psychology*, *78*(1), 81–91. https://doi.org/10.1037/0022-3514.78.1.81

Heider, F. (1946). Attitudes and cognitive organization. *The Journal of Psychology, 21(1),* 107–112. https://doi.org/10.1080/00223980.1946.9917275

Heider, F. (1958). *The psychology of interpersonal relations*. John Wiley & Sons. https://doi.org/10.1037/10628-000

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, *33*(2–3), 61–83. https://doi.org/10.1017/S0140525X0999152X

Herr, P. M., Kardes, F. R., & Kim, J. (1991). Effects of word-of-mouth and product-attribute information on persuasion: An accessibility-diagnosticity perspective. *Journal of Consumer Research*, *17*(4), 454–462. https://doi.org/10.1086/208570

Herr, P. M., & Page, C. M. (2004). Asymmetric association of liking and disliking judgments: So what's not to like*? Journal of Consumer Research, 30*(4), 588–601. https://doi.org/10.1086/380291

Hobbs, M., Owen, S., & Gerber, L. (2017). Liquid love? Dating apps, sex, relationships and the digital transformation of intimacy. *Journal of Sociology*, *53*(2), 271–284. https://doi.org/10.1177/1440783316662718

Hodges, B. H. (1974). Effect of valence on relative weighting in impression formation. *Journal of Personality and Social Psychology*, *30*(3), 378–381. https://doi.org/10.1037/h0036890

Hodges, S. D. (2005). A feature-based model of self-other comparisons. In M. D. Alicke, D. A. Dunning, & J. I. Krueger (Eds.), *The self in social judgment* (pp. 131–153). Psychology Press.

Hogarth, R. M., & Einhorn, H. J. (1992). Order effects in belief updating: The belief-adjustment model. *Cognitive Psychology*, *24*(1), 1–55. https://doi.org/10.1016/0010-0285(92)90002-J

Houston, D. A., & Sherman, S. J. (1995). Cancellation and focus: The role of shared and unique features in the choice process. *Journal of Experimental Social Psychology*, *31*(4), 357–378. https://doi.org/10.1006/jesp.1995.1016

Houston, D. A., Sherman, S. J., & Baker, S. M. (1989). The influence of unique features and direction of comparison of preferences. *Journal of Experimental Social Psychology*, *25*(2), 121–141. https://doi.org/10.1016/0022-1031(89)90008-5

Hout, M. C., Goldinger, S. D., & Ferguson, R. W. (2013). The versatility of SpAM: A fast, efficient, spatial method of data collection for multidimensional scaling. *Journal of Experimental Psychology: General*, *142*(1), 256–281. https://doi.org/10.1037/a0028860

Imhoff, R., Koch, A., & Flade, F. (2018). (Pre)occupations: A data-driven model of jobs and its consequences for categorization and evaluation. *Journal of Experimental Social Psychology*, *77*, 76–88. https://doi.org/10.1016/j.jesp.2018.04.001

Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology, 75*(4), 887–900. https://doi.org/ 10.1037/0022-3514.75.4.887

Izard, C. E. (1971). *The face of emotion*. Appleton-Century-Crofts.

Izard, C. E. (2009). Emotion theory and research: Highlights, unanswered questions, and emerging issues. *Annual Review of Psychology*, *60*, 1–25. https://doi.org/10.1146/annurev.psych.60.110707.163539

Jamieson, D. W., Lydon, J. E., & Zanna, M. P. (1987). Attitude and activity preference similarity: Differential bases of interpersonal attraction for low and high self-monitors. *Journal of Personality and Social Psychology, 53*(6),1052–1060. https://doi.org/10.1037/0022-3514.53.6.1052

Jiang, L., Hoegg, J., Dahl, D. W., & Chattopadhyay, A. (2010). The persuasive role of incidental similarity on attitudes and purchase intentions in a sales context. *Journal of Consumer Research*, *36*(5), 778–791. https://doi.org/10.1086/605364

Joel, S., & Charlot, N. (2022). Dealbreakers, or dealbenders? Capturing the cumulative effects of partner information on mate choice. *Journal of Experimental Social Psychology*, *101*, 104328. https://doi.org/10.1016/j.jesp.2022.104328

Joel, S., Eastwick, P. W., & Finkel, E. J. (2017). Is romantic desire predictable? Machine learning applied to initial romantic attraction. *Psychological Science, 28*(10), 1478–1489. https://doi.org/10.1177/0956797617714580

Joel, S., Teper, R., & MacDonald, G. (2014). People overestimate their willingness to reject potential romantic partners by overlooking their concern for other people. *Psychological Science, 25*(12), 2233–2240. https://doi.org/10.1177/ 0956797614552828

Johnson, R. C., Thomson, C. W., & Frincke, G. (1960). Word values, word frequency, and visual duration thresholds. *Psychological Review*, *67*(5), 332–342. https://doi.org/10.1037/h0038869

Jonason, P. K., Garcia, J. R., Webster, G. D., Li, N. P., & Fisher, H. E. (2015). Relationship dealbreakers: Traits people avoid in potential mates. *Personality and Social Psychology Bulletin, 41*(12), 1697–1711. https://doi.org/10.1177/0146167215609064

Jonason, P. K., White, K. P., & Al-Shawaf, L. (2020). Should I stay or should I go: Individual differences in response to romantic dealmakers and dealbreakers. *Personality and Individual Differences*, *164*, 110120. https://doi.org/10.1016/j.paid.2020.110120

Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person perception. *Advances in Experimental Social Psychology, 2*, 219–266. https://doi.org/10.1016/S0065-2601(08)60107-0

Jones, R. A., Sensenig, J., & Haley, J. V. (1974). Self-descriptions: Configurations of content and order effects. *Journal of Personality and Social Psychology*, *30*(1), 36–45. https://doi.org/10.1037/h0036674

Judd, C. M., Westfall, J., & Kenny, D. A. (2017). Experiments with more than one random factor: Designs, analytic models, and statistical power. *Annual Review of Psychology, 68*(1), 601–625. https://doi.org/10.1146/annurev-psych-122414-033702

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263–292. https://doi.org/10.2307/1914185

Kanouse, D. E., & Hanson, L. R., Jr. (1972). Negativity in evaluations. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, & B. Weiner (Eds.), *Attribution: Perceiving the causes of behavior* (pp. 47–62). General Learning Press.

Kaplan, M. F., & Anderson, N. H. (1973). Information integration theory and reinforcement theory as approaches to interpersonal attraction. *Journal of Personality and Social Psychology*, *28*(3), 301–312. https://doi.org/10.1037/h0035112

Kellerman, K. (1984). The negativity effect and its implications for initial interaction. In M. L. Knapp & J. A. Daly (Eds.), *Interpersonal Communication* (pp. 339–359). Sage.

Kelley, H. H. (1967). Attribution theory in social psychology. *Nebraska Symposium on Motivation, 15*, 192–238.

Kelley, H. H. (1973). The processes of causal attribution. *American Psychologist*, *28*(2), 107–128. https://doi.org/10.1037/h0034225

Kenrick, D. T., Groth, G. E., Trost, M. R., & Sadalla, E. K. (1993). Integrating evolutionary and social exchange perspectives on relationships: Effects of gender, self-appraisal, and involvement level on mate selection criteria. *Journal of Personality and Social Psychology, 64*(6), 951–969. https://doi.org/10.1037/0022-3514.64.6.951

Knobe, J. (2003). Intentional action and side effects in ordinary language. *Analysis*, *63*(3), 190–194.

Koch, A., Alves, H., Krüger, T., & Unkelbach, C. (2016). A general valence asymmetry in similarity: Good is more alike than bad. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *42*(8), 1171–1192. https://doi.org/10.1037/xlm0000243

Koch, A., Bromley, A., Woitzel, J., & Alves, H. (2024). Differentiation in social perception: Why later-encountered individuals are described more negatively. *Journal of Personality and Social Psychology*, *126*(6), 978–997. https://doi.org/10.1037/pspa0000383

Koch, A., Imhoff, R., Dotsch, R., Unkelbach, C., & Alves, H. (2016). The ABC of stereotypes about groups: Agency/socioeconomic success, conservative–progressive beliefs, and communion. *Journal of Personality and Social Psychology*, *110*(5), 675–709. https://doi.org/10.1037/pspa0000046

Koch, A., Speckmann, F., & Unkelbach, C. (2022). Q-SpAM: How to efficiently measure similarity in online research. *Sociological Methods & Research*, *51*(3), 1442–1464. https://doi.org/10.1177/0049124120914937

Kowalski, R. M. (2002). Whining, griping, and complaining: Positivity in the negativity. *Journal of Clinical Psychology*, *58*(9), 1023–1035. https://doi.org/10.1002/jclp.10095

Kumar, A., Mann, T. C., & Gilovich, T. (2024). The aptly buried "I" in experience: Experiential purchases promote more social connection than material purchases. *Journal of Behavioral Decision Making*, *37*(2), 1–13. https://doi.org/10.1002/bdm.2376

Kunda, Z., & Thagard, P. (1996). Forming impressions from stereotypes, traits, and behaviors: A parallel-constraint-satisfaction theory. Psychological Review, 103(2), 284–308. https://doi.org/10.1037/0033-295X.103.2.284

Langlois, J. H., & Roggman, L. A. (1990). Attractive faces are only average. *Psychological Science*, *1*(2), 115–121. https://doi.org/10.1111/j.1467-9280.1990.tb00079.x

Laurenceau, J.-P., Barrett, L. F., & Pietromonaco, P. R. (1998). Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. *Journal of Personality and Social Psychology, 74*(5), 1238–1251. https://doi.org/10.1037//0022- 3514.74.5.1238

Layton, B. D., & Insko, C. A. (1974). Anticipated interaction and the similarity-attraction effect. *Sociometry*, *37*(2), 149–162. https://doi.org/10.2307/2786372

Leaper, C., & Holliday, H. (1995). Gossip in same-gender and cross-gender friends' conversations. *Personal Relationships, 2*(3), 237–246. https://doi.org/10.1111/j.1475-6811.1995.tb00089.x

Leising, D., Erbs, J., & Fritz, U. (2010). The letter of recommendation effect in informant ratings of personality. *Journal of Personality and Social Psychology*, *98*(4), 668–682. https://doi.org/10.1037/a0018771

Leising, D., Ostrovski, O., & Borkenau, P. (2012). Vocabulary for describing disliked persons is more differentiated than vocabulary for describing liked persons. *Journal of Research in Personality*, *46*(4), 393–396. https://doi.org/10.1016/j.jrp.2012.03.006

Leising, D., Ostrovski, O., & Zimmermann, J. (2013). "Are we talking about the same person here?": Interrater agreement in judgments of personality varies dramatically with how much the perceivers like the targets. *Social Psychological and Personality Science*, *4*(4), 468–474. https://doi.org/10.1177/1948550612462414

Leising, D., Scharloth, J., Lohse, O., & Wood, D. (2014). What types of terms do people use when describing an individual's personality? *Psychological Science*, *25*(9), 1787–1794. https://doi.org/10.1177/0956797614541285

Leising, D., Scherbaum, S., Locke, K. D., & Zimmermann, J. (2015). A model of "substance" and "evaluation" in person judgments. *Journal of Research in Personality*, *57*, 61–71. https://doi.org/10.1016/j.jrp.2015.04.002

Lewin, K. (1939). Field theory and experiment in social psychology: Concepts and methods. *American Journal of Sociology, 44*, 868–896. https://doi.org/10.1086/218177

Lewin, K. (1943). Psychological ecology. In D. Cartwright (Ed.), *Field theory in social science: Selected theoretical papers by Kurt Lewin* (pp. 17–187). Social Science Paperbacks.

Lewis, K. N., & Walsh, W. B. (1980). Effects of value-communication style and similarity of values on counselor evaluation. *Journal of Counseling Psychology, 27*(4), 305–314. https://doi.org/10.1037/0022-0167.27.4.305

Leyens, J.-P., & Fiske, S. T. (1994). Impression formation: From recitals to symphonie fantastique. In P. G. Devine, D. L. Hamilton, & T. M. Ostrom (Eds.), *Social cognition: Impact on social psychology* (pp. 39–75). Academic Press.

Leyens, J.-P., & Yzerbyt, V. Y. (1992). The ingroup overexclusion effect: Impact of valence and confirmation on stereotypical information search. *European Journal of Social Psychology*, *22*(6), 549–569. https://doi.org/10.1002/ejsp.2420220604

Li, N. P., Bailey, J. M., Kenrick, D. T., & Linsenmeier, J. A. W. (2002). The necessities and luxuries of mate preferences: Testing the tradeoffs. *Journal of Personality and Social psychology*, *82*(6), 947–955. https://doi.org/10.1037//0022-3514.82.6.947

Li, N. P., & Kenrick, D. T. (2006). Sex similarities and differences in preferences for short-term mates: What, whether, and why. *Journal of Personality and Social Psychology*, *90*(3), 468–489. https://doi.org/10.1037/0022-3514.90.3.468

Litman, L., Moss, A., Rosenzweig, C., & Robinson, J. (2021). *Reply to MTurk, Prolific or Panels? Choosing the Right Audience for Online Research (January 28, 2021)*. Available at SSRN. https://doi.org/10.2139/ssrn.3775075.

Lonsdale, A. J., & North, A. C. (2009). Musical taste and ingroup favouritism. *Group Processes & Intergroup Relations*, *12*(3), 319–327. https://doi.org/10.1177/1368430209102842

Lott, A. J., & Lott, B. E. (1974). The role of reward in the formation of positive interpersonal attitudes. In T. L. Huston (Ed.), *Foundations of interpersonal attraction* (pp. 171–192). Academic Press.

Luo, S., & Zhang, G. (2009). What leads to romantic attraction: Similarity, reciprocity, security, or beauty? Evidence from a speed-dating study. *Journal of Personality*, *77*(4), 933–964. https://doi.org/10.1111/j.1467-6494.2009.00570.x

Macrae, C. N., & Bodenhausen, G. V. (2000). Social cognition: Thinking categorically about others. *Annual Review of Psychology*, *51*, 93–120. https://doi.org/10.1146/annurev.psych.51.1.93

Matlin, M. W., & Stang, D. J. (1978). *The Pollyanna principle: Selectivity in language, memory, and thought*. Shenkman.

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, *27*, 415–444. https://doi.org/10.1146/annurev.soc.27.1.415

Miller, R. S. (2021). *Intimate relationships* (9th ed.). McGraw-Hill.

Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships, 25*(6), 889–922. https://doi.org/10.1177/0265407508096700

Montoya, R. M., & Horton, R. S. (2013). A meta-analytic investigation of the processes underlying the similarity-attraction effect. *Journal of Social and Personal Relationships*, *30*(1), 64–94. https://doi.org/10.1177/0265407512452989

Montoya, R. M., & Horton, R. S. (2014). A two-dimensional model for the study of interpersonal attraction. *Personality and Social Psychology Review*, *18*(1), 59–86. https://doi.org/10.1177/1088868313501887

Moore, D. R. J. (2001). The Anna Karenina principle applied to ecological risk assessments of multiple stressors. *Human and Ecological Risk Assessment: An International Journal*, *7*(2), 231–237. https://doi.org/10.1080/20018091094349

Morry, M. M. (2005). Relationship satisfaction as a predictor of similarity ratings: A test of the attraction-similarity hypothesis. *Journal of Social and Personal Relationships*, *22*(4), 561–584. https://doi.org/10.1177/0265407505054524

Morry, M. M. (2007). The attraction-similarity hypothesis among cross-sex friends: Relationship satisfaction, perceived similarities, and self-serving perceptions. *Journal of Social and Personal Relationships*, *24*(1), 117–138. https://doi.org/10.1177/0265407507072615

Murstein, B. I., & Beck, G. D. (1972). Person perception, marriage adjustment, and social desirability. *Journal of Consulting and Clinical Psychology*, *39*(3), 396–403. https://doi.org/10.1037/h0033960

Nauts, S., Langner, O., Huijsmans, I., Vonk, R., & Wigboldus, D. H. J. (2014). Forming impressions of personality. *Social Psychology*, *45*(3), 153–163. https://doi.org/10.1027/1864-9335/a000179

Neuberg, S. L., & Fiske, S. T. (1987). Motivational influences on impression formation: Outcome dependency, accuracy-driven attention, and individuating processes. *Journal of Personality and Social Psychology*, *53*(3), 431–444. https://doi.org/10.1037/0022-3514.53.3.431

Newcomb, T. M. (1961). *The acquaintance process*. Holt, Rinehart & Winston.

Newman, L. S. (2001). A cornerstone for the science of interpersonal behavior? Person perception and person memory, past, present, and future. In G. B. Moskowitz (Ed.), *Cognitive social psychology: The princeton symposium on the legacy and future of social cognition* (pp. 191–207). Psychology Press.

Ortony, A., & Turner, T. (1990). What's basic about basic emotions? *Psychological Review*, *97*(3), 315–331. https://doi.org/10.1037/0033-295X.97.3.315

Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). *The measurement of meaning.* University of Illinois Press.

Paolini, S., Gibbs, M., Sales, B., Anderson, D., & McIntyre, K. (2024). Negativity bias in intergroup contact: Meta-analytical evidence that bad is stronger than good, especially when people have the opportunity and motivation to opt out of contact. *Psychological Bulletin, 150*(8), 921–964. https://doi.org/10.1037/bul0000439

Parducci, A. (1965). Category judgment: A range-frequency model. *Psychological Review, 72*(6), 407–418. https://doi.org/10.1037/h0022602

Peeters, G. (1971). The positive-negative asymmetry: On cognitive consistency and positivity bias. *European Journal of Social Psychology*, *1*(4), 455–474. https://doi.org/10.1002/ejsp.2420010405

Peeters, G., & Czapinski, J. (1990). Positive-negative asymmetry in evaluations: The distinction between affective and informational negativity effects. *European Review of Social Psychology, 1*(1), 33–60. https://doi.org/10.1080/14792779108401856

Peterson, J. L., & Miller, C. (1980). Physical attractiveness and marriage adjustment in older American couples. *The Journal of Psychology: Interdisciplinary and Applied, 105*(2), 247–252. https://doi.org/10.1080/00223980.1980.9915158

Podell, H. A., & Podell, J. E. (1963). Quantitative connotation of a concept. *Journal of Abnormal and Social Psychology, 67*(5), 509–513. https://doi.org/10.1037/h0041513

Potter, T., Corneille, O., Ruys, K. I., & Rhodes, G. (2007). "Just another pretty face": A multidimensional scaling approach to face attractiveness and variability. *Psychonomic Bulletin & Review*, *14*(2), 368–372. https://doi.org/10.3758/BF03194079

Pratto, F., & John, O. P. (1991). Automatic vigilance: The attention-grabbing power of negative social information. *Journal of Personality and Social Psychology*, *61*(3), 380–391. https://doi.org/10.1037/0022-3514.61.3.380

Pronin, E., Fleming, J. J., & Steffel, M. (2008). Value revelations: Disclosure is in the eye of the beholder. *Journal of Personality and Social Psychology*, *95*(4), 795–809. https://doi.org/10.1037/a0012710

Pronk, T. M., & Denissen, J. J. A. (2020). A rejection mind-set: Choice overload in online dating. *Social Psychological and Personality Science*, *11*(3), 388–396. https://doi.org/10.1177/1948550619866189

R Core Team (2024). R: A language and environment for statistical computing (Version 4.3.3) [Computer Software]. https://www.R-project.org/

Rambaran, J. A., Dijkstra, J. K., Munniksma, A., & Cillessen, A. H. N. (2015). The development of adolescents' friendships and antipathies: A longitudinal multivariate network test of balance theory. *Social Networks*, *43*, 162–176. https://doi.org/10.1016/j.socnet.2015.05.003

Reeder, G. D., & Brewer, M. B. (1979). A schematic model of dispositional attribution in interpersonal perception. *Psychological Review*, *86*(1), 61–79. https://doi.org/10.1037/0033-295X.86.1.61

Rhodes, G. (2006). The evolutionary psychology of facial beauty. *Annual Review of Psychology*, *57*, 199–226. https://doi.org/10.1146/annurev.psych.57.102904.190208

Ric, F., Alexopoulos, T., Muller, D., & Aubé, B. (2013). Emotional norms for 524 French personality trait words. *Behavior Research Methods*, *45*(2), 414–421. https://doi.org/10.3758/s13428-012-0276-z

Robbins, J. M., & Krueger, J. I. (2005). Social projection to ingroups and outgroups: A review and meta-analysis. *Personality and Social Psychology Review, 9*(1), 32–47. https://doi.org/10.1207/s15327957pspr0901_3

Rosenbaum, M. E. (1986). The repulsion hypothesis: On the nondevelopment of relationships. *Journal of Personality and Social Psychology, 51*(6), 1156–1166. https://doi.org/10.1037/0022-3514.51.6.1156

Rosenberg, S., Nelson, C., & Vivekananthan, P. S. (1968). A multidimensional approach to the structure of personality impressions. *Journal of Personality and Social Psychology*, *9*(4), 283–294. https://doi.org/10.1037/h0026086

Rosenfeld, M. J., Thomas, R. J., & Hausen, S. (2019). Disintermediating your friends: How online dating in the United States displaces other ways of meeting. *Proceedings of the National Academy of Sciences*, *116*(36), 17753–17758. https://doi.org/10.1073/pnas.1908630116

Rothbart, M., & Park, B. (1986). On the confirmability and disconfirmability of trait concepts. *Journal of Personality and Social Psychology*, *50*(1), 131–142. https://doi.org/10.1037/0022-3514.50.1.131

Rozin, P., Berman, L., & Royzman, E. B. (2010). Biases in use of positive and negative words across twenty natural languages. *Cognition and Emotion*, *24*(3), 536–548. https://doi.org/10.1080/02699930902793462

Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, *5*(4), 296–320. https://doi.org/10.1207/S15327957PSPR0504_2

Schroeder, J., & Fishbach, A. (2024). Feeling known predicts relationship satisfaction. *Journal of Experimental Social Psychology*, *111*, 104559. https://doi.org/10.1016/j.jesp.2023.104559

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology, 25*, 1–65. https://doi.org/10.1016/S0065-2601(08)60281-6

Schwartz, S. H., & Bardi, A. (2001). Value hierarchies across cultures: Taking a similarities perspective. *Journal of Cross-Cultural Psychology*, *32*(3), 268–290. https://doi.org/10.1177/0022022101032003002

Sears, D. O. (1983). The person-positivity bias. *Journal of Personality and Social Psychology*, *44*(2), 233–250. https://doi.org/10.1037/0022-3514.44.2.233

Shanteau, J., & Nagy, G. F. (1984). Information integration in person perception: Theory and application. In M. Cook (Ed.), *Issues in Person Perception* (pp. 48-86). Routledge.

Sherman, J. W., Kruschke, J. K., Sherman, S. J., Percy, E. J., Petrocelli, J. V., & Conrey, F. R. (2009). Attentional processes in stereotype formation: A common model for category accentuation and illusory correlation. *Journal of Personality and Social Psychology*, *96*(2), 305–323. https://doi.org/10.1037/a0013778

Shin, Y. S., & Niv, Y. (2021). Biased evaluations emerge from inferring hidden causes. *Nature Human Behaviour*, *5*(9), 1180–1189. https://doi.org/10.1038/s41562-021-01065-0

Skowronski, J., & Carlston, D. (1987). Social judgment and social memory: The role of cue diagnosticity in negativity, positivity, and extremity biases. *Journal of Personality and Social Psychology*, *52*(4), 689–699. https://doi.org/10.1037/0022-3514.52.4.689

Skowronski, J. J., & Carlston, D. E. (1989). Negativity and extremity biases in impression formation: A review of explanations. *Psychological Bulletin*, *105*(1), 131–142. https://doi.org/10.1037/0033-2909.105.1.131

Skowronski, J. J., Carlston, D. E., Mae, L., & Crawford, M. T. (1998). Spontaneous trait transference: Communicators take on the qualities they describe in others. *Journal of Personality and Social Psychology*, *74*(4), 837–848. https://doi.org/10.1037/0022-3514.74.4.837

Sperlich, L. M., & Unkelbach, C. (in press). Why is there no negativity bias in Evaluative Conditioning? A cognitive-ecological answer. *Journal of Personality and Social Psychology*.

Sprecher, S., & Regan, P. (2002). Liking some things (in some people) more than others: Partner preferences in romantic relationships and friendships. *Journal of Social and Personal Relationships, 19*(4), 463–481. https://doi.org/10.1177/0265407502019004048

Sprecher, S., Treger, S., & Wondra, J. D. (2013). Effects of self-disclosure role on liking, closeness, and other impressions in get-acquainted interactions. *Journal of Social and Personal Relationships*, *30*(4), 497–514. https://doi.org/10.1177/0265407512459033

Steele, M. E., & McGlynn, R. P. (1979). Effects of affective value and similarity on attraction. *The Journal of Social Psychology*, *108*(1), 111–119. https://doi.org/10.1080/00224545.1979.9711968

Stevens, G., Owens, D., & Schaefer, E. C. (1990). Education and attractiveness in marriage choices. *Social Psychology Quarterly*, *53*(1), 62–70. https://doi.org/10.2307/2786870

Storms, M. D., & Thomas, G. C. (1977). Reactions to physical closeness. *Journal of Personality and Social Psychology*, *35*(6), 412–418. https://doi.org/10.1037/0022-3514.35.6.412

Sunnafrank, M. (1983). Attitude similarity and interpersonal attraction in communication processes: In pursuit of an ephemeral influence. *Communication Monographs*, *50*(4), 273–284. https://doi.org/10.1080/03637758309390170

Sunnafrank, M. J. (1991). Interpersonal attraction and attitude similarity: A communication-based assessment. In J. A. Anderson (Ed.), *Communication Yearbook 14* (pp. 451–483). Routledge.

Sunnafrank, M. J., & Miller, G. R. (1981). The role of initial conversations in determining attraction to similar and dissimilar strangers. *Human Communication Research, 8*(1), 16–25. https://doi.org/10.1111/j.1468-2958.1981.tb00653.x

Tajfel, H., & Forgas, J. P. (2000). Social categorization: Cognitions, values and groups. In C. Stangor (Ed.), *Stereotypes and prejudice: Essential readings* (pp. 49–63). Psychology Press.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Brooks/Cole.

Tan, D. T., & Singh, R. (1995). Attitudes and attraction: A developmental study of the similarity-attraction and dissimilarity-repulsion hypotheses. *Personality and Social Psychology Bulletin*, *21*(9), 975–986. https://doi.org/10.1177/0146167295219011

Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin*, *110*(1), 67–85. https://doi.org/10.1037/0033-2909.110.1.67

Tesser, A. (1971). Evaluative and structural similarity of attitudes as determinants of interpersonal attraction. *Journal of Personality and Social Psychology*, *18*(1), 92–96. https://doi.org/10.1037/h0030711

Tesser, A., & Rosen, S. (1975). The recultance to transmit bad news. *Advances in Experimental Social Psychology, 8*, 193–232. https://doi.org/10.1016/S0065-2601(08)60251-8

Thiessen, D., & Gregg, B. (1980). Human assortative mating and genetic equilibrium: An evolutionary perspective. *Ethology and Sociobiology*, *1*(2), 111–140. https://doi.org/10.1016/0162-3095(80)90003-5

Thomas, A. G., Jonason, P. K., Blackburn, J. D., Kennair, L. E. O., Lowe, R., Malouff, J., Stewart-Williams, S., Sulikowski, D., & Li, N. P. (2020). Mate preferences priorities in the east and west: A cross-cultural test of the mate preference priority model. *Journal of Personality, 88*, 606–6290. https://doi.org/10.1111/jopy.12514

Thomas, D. L., & Diener, E. (1990). Memory accuracy in the recall of emotions. *Journal of Personality and Social Psychology*, *59*(2), 291–297. https://doi.org/10.1037/0022-3514.59.2.291

Thorndike, E. L. (1920). A constant error in psychological ratings. *Journal of Applied Psychology*, *4*(1), 25–29. https://doi.org/10.1037/h0071663

Tidwell, N. D., Eastwick, P. W., & Finkel, E. J. (2013). Perceived, not actual, similarity predicts initial attraction in a live romantic context: Evidence from the speed-dating paradigm. *Personal Relationships*, *20*(2), 199–215. https://doi.org/10.1111/j.1475-6811.2012.01405.x

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). mediation: R Package for Causal Mediation Analysis. *Journal of Statistical Software, 59*(5), 1–38. http://www.jstatsoft.org/v59/i05/

Tolstoy, L. (1877). *Anna Karenina.* Penguin Classics.

Toma, C. L., & Hancock, J. T. (2010). Looks and lies: The role of physical attractiveness in online dating self-presentation and deception. *Communication Research, 37*(3), 335-351. https://doi.org/10.1177/0093650209356437

Turner, M. M., Mazur, M. A., Wendel, N., & Winslow, R. (2003). Relational ruin or social glue? The joint effect of relationship type and gossip valence on liking, trust, and expertise. *Communication Monographs*, *70*(2), 129–141. https://doi.org/10.1080/0363775032000133782

Tversky, A. (1977). Features of similarity. *Psychological Review*, *84*(4), 327–352. https://doi.org/10.1037/0033-295X.84.4.327

Unkelbach, C. (2012). Positivity advantages in social information processing. *Social and Personality Psychology Compass*, *6*(1), 83–94. https://doi.org/10.1111/j.1751-9004.2011.00407.x

Unkelbach, C., Alves, H., & Koch, A. (2020). Negativity bias, positivity bias, and valence asymmetries: Explaining the differential processing of positive and negative information. *Advances in Experimental Social Psychology, 62*, 115–187. https://doi.org/10.1016/bs.aesp.2020.04.005

Unkelbach, C., Fiedler, K., Bayer, M., Stegmüller, M., & Danner, D. (2008). Why positive information is processed faster: The density hypothesis. *Journal of Personality and Social Psychology*, *95*(1), 36–49. https://doi.org/10.1037/0022-3514.95.1.36

Unkelbach, C., Koch, A., & Alves, H. (2019). The evaluative information ecology: On the frequency and diversity of "good" and "bad". *European Review of Social Psychology*, *30*(1), 216–270. https://doi.org/10.1080/10463283.2019.1688474

Unkelbach, C., von Hippel, W., Forgas, J. P., Robinson, M. D., Shakarchi, R. J., & Hawkins, C. (2010). Good things come easy: Subjective exposure frequency and the faster processing of positive information. *Social Cognition*, *28*(4), 538–555. https://doi.org/10.1521/soco.2010.28.4.538

Vaish, A., Grossmann, T., & Woodward, A. (2008). Not all emotions are created equal: The negativity bias in social-emotional development. *Psychological Bulletin*, *134*(3), 383–403. https://doi.org/10.1037/0033-2909.134.3.383

Van Hoye, G., & Turban, D. B. (2015). Applicant–Employee Fit in Personality: Testing predictions from similarity-attraction theory and trait activation theory. *International Journal of Selection and Assessment*, *23*(3), 210–223. https://doi.org/10.1111/ijsa.12109

Vélez, N., Bridgers, S., & Gweon, H. (2019). The rare preference effect: Statistical information influences social affiliation judgments. *Cognition*, *192*(11), 103994. https://doi.org/10.1016/j.cognition.2019.06.006

Visser, P. S., Bizer, G., & Krosnick, J. A. (2006). Exploring the latent structure of strength-related attitude attributes. *Advances in Experimental Social Psychology, 38*, 1–67. https://doi.org/10.1016/S0065-2601(06)38001-X

Vittengl, J. R., & Holt, C. S. (2000). Getting acquainted: The relationship of self-disclosure and social attraction to positive affect. *Journal of Social and Personal Relationships*, *17*(1), 53–66. https://doi.org/10.1177/0265407500171003

Vogel, T., & Wänke, M. (2016). *Attitudes and attitude change* (2nd ed.). Psychology Press.

Vonk, R. (1993). The negativity effect in trait ratings and in open-ended descriptions of persons. *Personality and Social Psychology Bulletin*, *19*(3), 269–278. https://doi.org/10.1177/0146167293193003

Wagemans, J., Elder, J. H., Kubovy, M., Palmer, S. E., Peterson, M. A., Singh, M., & von der Heydt, R. (2012). A century of Gestalt psychology in visual perception: I. Perceptual grouping and figure–ground organization. *Psychological Bulletin*, *138*(6), 1172–1217. https://doi.org/10.1037/a0029333

Warriner, A. B., & Kuperman, V. (2015). Affective biases in English are bi-dimensional. *Cognition and Emotion*, *29*(7), 1147–1167. https://doi.org/10.1080/02699931.2014.968098

Warriner, A. B., Kuperman, V., & Brysbaert, M. (2013). Norms of valence, arousal, and dominance for 13,915 English lemmas. *Behavior Research Methods*, *45*(4), 1191–1207. https://doi.org/10.3758/s13428-012-0314-x

Watson, D., Beer, A., & McDade-Montez, E. (2014). The role of active assortment in spousal similarity: Active assortment and spousal similarity. *Journal of Personality, 82*, 116–129. https://doi.org/10.1111/jopy.12039.

Watson, D., Klohnen, E. C., Casillas, A., Nus Simms, E., Haig, J., & Berry, D. S. (2004). Match makers and deal breakers: Analyses of assortative mating in newlywed couples. *Journal of Personality*, *72*(5), 1029–1068. https://doi.org/10.1111/j.0022-3506.2004.00289.x

Weaver, J. R., & Bosson, J. K. (2011). I feel like I know you: Sharing negative attitudes of others promotes feelings of familiarity. *Personality and Social Psychology Bulletin*, *37*(4), 481–491. https://doi.org/10.1177/0146167211398364

Werner, C., & Parmelee, P. (1979). Similarity of activity preferences among friends: Those who play together stay together. *Social Psychology Quarterly*, *42*(1), 62–66. https://doi.org/10.2307/3033874

Wertheimer, M. (1938). Laws of organization in perceptual forms. In W. D. Ellis (Ed.), *A source book of Gestalt psychology* (pp. 71–88). Kegan Paul, Trench, Trubner & Company. https://doi.org/10.1037/11496-005

Winkielman, P., Halberstadt, J., Fazendeiro, T., & Catty, S. (2006). Prototypes are attractive because they are easy on the mind. *Psychological Science*, *17*(9), 799–806. https://doi.org/10.1111/j.1467-9280.2006.01785.x

Wishner, J. (1960). Reanalysis of „impressions of personality.“ *Psychological Review*, *67*(2), 96–112. https://doi.org/10.1037/h0040498

Woitzel, J., & Alves, H. (2024). The formation of negative attitudes toward novel groups. *Psychological Science, 35*(6), 613–622. https://doi.org/10.1177/09567976241239932

Wojciszke, B., Brycz, H., & Borkenau, P. (1993). Effects of information content and evaluative extremity on positivity and negativity biases. *Journal of Personality and Social Psychology, 64*(3), 327–335. https://doi.org/10.1037/0022-3514.64.3.327

Wyer, R. S., Jr. (1974). *Cognitive organization and change: An information processing approach*. Psychology Press.

Wyer, R. S., Jr., & Lambert, A. J. (1994). The role of trait constructs in person perception: An Historical Perspective. In P. G. Devine, D. L. Hamilton, & T. M. Ostrom (Eds.), *Social cognition: Impact on social psychology* (pp. 109–142). Academic Press.

Yoo, J. H. (2009). The power of sharing negative information in a dyadic context. *Communication Reports, 22*(1), 29–40. https://doi.org/10.1080/08934210902798510

Yzerbyt, V. Y., & Leyens, J.-P. (1991). Requesting information to form an impression: The influence of valence and confirmatory status. *Journal of Experimental Social Psychology*, *27*(4), 337–356. https://doi.org/10.1016/0022-1031(91)90030-A

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, *9*(2, Pt.2), 1–27. https://doi.org/10.1037/h0025848

Zanna, M. P., & Hamilton, D. L. (1972). Attribute dimensions and patterns of trait inferences. *Psychonomic Science*, *27*(6), 353–354. https://doi.org/10.3758/BF03328989

Zanna, M. P., & Hamilton, D. L. (1977). Further evidence for meaning change in impression formation. *Journal of Experimental Social Psychology*, *13*(3), 224–238. https://doi.org/10.1016/0022-1031(77)90045-2

Zorn, T. J., Mata, A., & Alves, H. (2022). Attitude similarity and interpersonal liking: A dominance of positive over negative attitudes. *Journal of Experimental Social Psychology*, *100*, 104281. https://doi.org/10.1016/j.jesp.2021.104281

Zorn, T. J., & Unkelbach, C. (2023). Do people avoid extreme judgments in the beginning? Calibration and contrast as explanations of serial position effects in evaluations. *Social Cognition, 41*(3), 209–238. https://doi.org/10.1521/soco.2023.41.3.209

Zuckerman, M., & Sinicropi, V. (2011). When physical and vocal attractiveness differ: Effects on favorability of interpersonal impressions. *Journal of Nonverbal Behavior*, *35*(2), 75–86. https://doi.org/10.1007/s10919-011-0106-5