# Interdependence Approaches to the Person and the Situation

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**Abstract**

This chapter outlines how the objective and subjective interdependence structure of social situations can, together with personality, influence behavior. We first review the premises of Interdependence Theory which suggests that six dimensions describe objective characteristics of interdependent situations: mutual dependence, power, conflict, coordination, future interdependence, and information certainty. Second, we discuss the role of personality for predicting behavior in interdependent situations. Third, noting that it is ultimately not the objective structure of situations that determines behavior, but individuals' subjective perception thereof, we summarize recent research showing that individuals only reliably differentiate between five – not six – dimensions of interdependence, and we describe the link between these dimensions and personality traits. Lastly, we outline directions for future research such as studying personality as a moderator of the link between interdependence perceptions and behavior, investigating the influence of the interaction partner on an actor's situation perception, and uncovering how the interdependence dimensions may interact to influence the relation between personality and behavior.

*Keywords*: Interdependence, Personality, Affordance, Person-Situation Transactions, Situation Perception

## Interdependence Approaches to the Person and the Situation

Interdependence, that is, how each individual's behavior affects their own and others' outcome, is a fundamental and defining characteristic of social situations that influences how people think about and behave in these situations (Gerpott, Balliet, Columbus, Molho, & de Vries, 2018, Kelley et al., 2003). Humans are interdependent in all areas of their social lives, although the form of interdependence certainly varies across situations. Different types of interdependence, in turn, can have serious implications for the behavior of interaction partners in each situation. For example, a worker who collaborates with a colleague to reach a common goal will likely face many interdependent situations at work that involve largely corresponding interests, meaning that both of them can achieve a personally desirable outcome. The worker should therefore be highly willing to engage in prosocial behavior with her co-worker, anticipating that the co-workers will do the same, so that they can mutually benefit. However, the same worker may enter a company-internal assessment center in which colleagues compete for a promotion. In this situation her gain is likely her colleague's loss, thus involving conflicting interests. Hence, the worker may engage in competitive behavior, anticipating that she and her colleague cannot both achieve their most desired outcome in this situation. As these examples demonstrate, people regularly experience diverse interdependent situations, and understanding the structure of these situations can contribute to our understanding about why people behave the way they do (Kelley et al., 2003; Reis, 2008).

Although every interdependent situation is unique, research has shown that interdependence can well be described by six situational properties (Kelley et al., 2003; Thibaut & Kelley, 1959) that we outline in more detail below. As we will argue in what follows, these properties or *dimensions* of interdependence, respectively, determine the affordances (Gibson, 1977) an interdependent situation provides which, in turn, determine to what extent certain personality traits may become expressed in individuals' behavior.

Specifically, situational affordances "provide a context for the expression of motives, goals, values, and preferences" (Reis, 2008, p. 316; see also Kelley et al., 2003). The consideration of affordances in interdependent situations can thus help understand *when* certain characteristics of the acting individual may influence behavior. Importantly, however, individuals may differ in how they perceive interdependent situations and thus the affordances the situations provide. Indeed, initial evidence indicates that personality characteristics may influence the relation between the objective interdependence structure and subjective representations thereof (Gerpott et al., 2018). Thus, it is vital to consider the interplay of objective and subjectively perceived interdependence structures – and corresponding situational affordances – together with stable individual differences to fully understand how the structure of interdependence can influence social behavior.

## Dimensions of Interdependence

Human life is inherently social, and social experience is characterized by the interdependence of interacting individuals. But how can the interdependence of actors in a social situation be conceptualized? With the goal of precisely specifying the structure of interdependence within situations, the founders of Interdependence Theory, Thibaut and Kelley (1959), relied on classic theories—exchange theory (Homans, 1958) and game theory (von Neumann & Morgenstern, 1947)—to formally define the outcomes of interactions between two actors when they are each facing a binary decision between cooperation and defection, that is, between acting in the other's interest versus acting in one's own interest only. Specifically, they analyzed the ways in which people can affect one another's outcome in such interactions by using an analysis of variance approach to decompose the sources of variance in each person's outcome (i.e., actor, partner, and actor x partner interaction). When analyzing across many interdependent situations, Kelley and Thibaut (1978) found that the degree of four universal characteristics define interdependent situations: mutual dependence,

power, conflict, and coordination (i.e., basis of interdependence; for a formal analysis see, Balliet, Tybur, & Van Lange, 2017; Kelley & Thibaut, 1978). Later, Kelley and colleagues (2003) added two more dimensions to their Interdependence Theory, namely future interdependence and information certainty. These dimensions were largely based on existing modelling work on reciprocity (Axelrod, 1997) and the importance of repeated interaction and noise in understanding social interactions.

**Mutual dependence**

Mutual dependence is defined as the degree to which an individual relies on her interaction partner in the sense that her outcome is determined by how the interaction partner behaves in the situation. To illustrate a situation of low mutual dependence, imagine two workers who belong to the same team but each of them has their own unique set of tasks. The company has a pay-for-performance system in place that rewards each worker for the number and quality of tasks completed. Each worker can simply choose in which order and how fast they want to work on the tasks, as their behaviors have no effect on the other's outcome. However, imagine now that the tasks of the workers build on each other. This situation is characterized by high mutual dependence. To be rewarded by the pay-for-performance system, it is decisive how both co-workers behave when working on the different tasks. In general, situations that involve a higher, compared to lower, mutual dependence have been shown to promote prosocial behaviors (Bachrach, Powell, Bendoly, & Richey, 2006; Comeau & Griffith, 2005; Gerpott et al., 2018; Martin, Gonzalez, Juvina, & Lebiere, 2014).

**Power**

In an interdependent situation, power describes the degree to which an individual determines—that is, has control over—her own and the others' outcomes. If a person has full power over their own and their partner's outcome, then the person is asymmetrically *independent* of the partner. The partner, by contrast, is asymmetrically *dependent* on the

person, given that her outcome is completely determined by the partner. Having asymmetrical power in a situation does not bring out the best in people (for an overview see Keltner, Gruenfeld, Galinsky, & Kraus, 2010). For example, compared to individuals with lower power, those with higher power are less trusting and cooperative toward interaction partners (Bendahan, Zehnder, Pralong, & Antonakis, 2015; De Cremer & Van Dijk, 2005) and tend to demand more and concede less during a negotiation (De Dreu, 1995). In contrast, individuals with lower power tend to speak up less (Milliken, Morrison, & Hewlin, 2003), they are more passive, and they show increased negative affect, and inhibited emotional display (Keltner, Gruenfeld, & Anderson, 2003).

**Conflict**

Conflict refers to the degree to which the behavior resulting in the best outcome for one individual results in the worst outcome for the other. Situations often possess a mixture of corresponding and conflicting interests (Balliet & Van Lange, 2013; Kelley & Thibaut, 1978). At low levels of conflict – characterized by interaction partners having corresponding interests –, both interaction partners can achieve their preferred outcome, which motivates people to cooperate both within and between groups (Bornstein, 2003). In contrast, at high levels of conflict – characterized by interaction partners having completely conflicting interests –, people tend to engage in less prosocial behavior (Murnighan & Roth, 1983). Taken together, people tend to be cooperative at low levels of conflict, whereas they tend to be competitive at high levels of conflict.

**Coordination**

Coordination—originally described as the basis of interdependence (Kelley & Thibaut, 1978)—refers to the degree to which an individual's behavior influences how a partner's behavior determines that individual's outcome. In situations of high coordination, people can improve their outcome by adjusting their behavior based on what their partner

does. In contrast, in situations of low coordination, aligning one's actions with the partner's actions does not improve the actor's outcome (it may either be outcome-neutral or actually harm the actor). Indeed, many situations of goal pursuit require coordination in that the behavior of one person becomes inextricably linked with the behavior of the other, which in turn determines their success in reaching a goal (Fitzsimons, Finkel, & vanDellen, 2015). In mutual social exchange situations (i.e., high coordination), tit-for-tat or other forms of contingency-based coordination are common (Van Lange & Balliet, 2015). In contrast, in situations that emphasize nonmutual social exchange (i.e., low coordination), interaction partners experience more suspicion and respond with relatively less cooperation (Kelley et al., 2003). In nonmutual social exchange situations the actor's outcomes rest in the partner's hands, and the actor may use promises or emphasize moral norms to increase the partner's cooperative behaviors (Van Lange & Balliet, 2015). Of note, coordination is a rewarding experience: People rate each other as more positive and are more likely to engage in prosocial behaviors if they perceive interpersonal synchrony, a proxy for coordination (Manson, Bryant, Gervais, & Kline, 2013).

**Future interdependence**

Future interdependence describes the degree to which one's own and the other's behavior in the current situation can affect both interaction partners' behavior and outcomes in future situations. If individuals know that their current behavior will affect future outcomes (e.g., because they know that they will interact with the same person again), they are more likely to behave in a prosocial manner (Van Lange, Klapwijk, & Van Munster, 2011). In contrast, if individuals know that they will not interact with the interaction partner again (i.e., in one-shot interactions), they are less likely to engage in prosocial behaviors—although the observed effect is smaller than would be expected from the standpoint of a purely self-interested actor (Fehr & Schmidt, 1999; Zeffermann, 2014). From an evolutionary

perspective, these findings – i.e., more (less) prosocial behaviors if future interdependence is high (low) – can be explained by the challenge of individuals to balance (a) one's costs of mistaking a one-shot interaction for a repeated interaction (thus facing the risk of being exploited) with (b) the far greater costs of mistaking a repeated interaction for a one-shot interaction (thereby forgoing benefits from a repeated, mutually cooperative interaction; Delton, Krasnow, Cosmides, & Tooby, 2011).

**Information certainty**

Information certainty describes the degree to which a person believes that both partners know about their preferred outcome and are aware of how each person's actions influence each other's outcome. That is, this dimension involves an understanding of the interaction partner's preferences in the situation, and how one's own and the other's behavior influence the achievement of these preferences. In general, people prefer to reduce uncertainty, and thus try to infer another's preferences even when interacting with a stranger (Berger & Calabrese, 1975; Thielmann, Hilbig, & Zettler, 2018; Todorov, Pakrashi, & Oosterhof, 2009). Increasing information certainty in interactions can help to increase prosocial behavior, particularly in one-shot interactions in which information uncertainty is necessarily high because individuals meet only once (Kanagaretnam, Mestelman, Nainar, & Shehata, 2010).

## How Personality Shapes Behavior in (Objective) Interdependent Situations

As summarized previously, Interdependence Theory offers a conceptual specification of social interactions that allows to describe and understand how individuals' behavior may influence one another's outcomes in social interactions (Van Lange & Balliet, 2015). Importantly, however, the way people act in different types of interdependent situations is not only a function of characteristics of the situation, but also of individuals' personality traits. The influence of personality on behavior in interdependent situations has been consistently

documented across a wide variety of research (for meta-analyses and reviews, see Balliet, Parks, & Joireman, 2009; Pletzer et al., 2018; Thielmann, Spadaro, & Balliet, in press; Zhao & Smillie, 2015). Most consistent evidence in this regard has been provided for two trait dimensions capturing dispositional prosociality: Social Value Orientation (i.e., the dispositional weights individuals attach to their own and another person's outcome; Balliet et al., 2009) and HEXACO Honesty-Humility (i.e., the tendency of individuals for fairness, greed avoidance, modesty, and sincerity; Ashton & Lee, 2007). In interdependent situations as modelled in economic games, both these traits have been shown to yield approximately medium-sized, positive correlations with prosocial behavior. However, many more traits show associations with behavior in interdependent situations, and no single trait is actually able to predict behavior in all types of social situations alike (Thielmann et al., in press).

To obtain a thorough understanding of these effects of personality on individuals' behavior in interdependent situations, Thielmann et al. (in press) recently presented an affordance-based framework of individual differences in prosocial behavior. Specifically, they propose that one needs to consider the affordances different types of interdependent situations provide – and which are a direct function of the interdependence structure at hand – to understand the relation between personality and prosocial behavior across various interdependent situations. As such, the framework rests on the notion that traits may be activated in certain interdependent situations depending on the affordances the situations provide (for similar reasoning, see, e.g., De Vries, Tybur, Pollet, & van Vugt, 2016; Mischel & Shoda, 1995; Rauthmann et al., 2014). For instance, Social Value Orientation and Honesty-Humility – both traits that are associated with unconditional concern for others – will arguably only be activated and thus become relevant for behavior in situations providing an affordance for exploitative behavior, as is, for example, the case in situations characterized by high conflict and high power. Thus, describing the independence structure of a situation and

linking it to the implied affordances may help us understand how the nature of interdependence influences the impact personality has on behavior in social interactions. In the next section, we therefore provide a detailed introduction into the situational affordances in interdependent situations and how these can affect which traits will become activated to be expressed in behavior.

**Affordances for the expression of personality in (objective) interdependent situations**

Interdependent situations may involve four broad, key affordances that form the basis for certain psychological processes[1] – and related personality traits – to become expressed in behavior (Thielmann et al., in press): (i) a possibility for exploitation, (ii) a possibility for reciprocity, (iii) a temporal conflict between short- and long-term interests, and (iv) dependence on others under uncertainty. Importantly, these affordances are directly linked to the dimensions of interdependence as specified in Interdependence Theory, in the sense that the structure of interdependence determines which affordances are present in a situation. Table 2 provides a summary of this logic, and we describe each of the four affordances and their links to structural features of the situation in detail in what follows.

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Insert Table 2 here

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First, interdependent situations may provide a possibility for *exploitation*, which applies whenever an individual can increase her personal outcome at others' costs and does not need to fear being punished for selfish (exploitative) behavior by the interaction partner(s). As such, the exploitation affordance is linked to the coordination, power, and conflict dimensions of interdependence. First, one can only exploit another person if the

[1] Psychological processes include all kinds of within-person factors that may be expressed in behavior in a given situation, including attitudes, cognitions, emotions, goals, and motives. Psychological processes are thus inherently tied to personality traits.

situation is characterized by low coordination requirements: If all individuals can maximize their individual outcomes by coordinating their behavior, exploitation is not possible because increasing one's outcomes is necessarily associated with increasing others' outcomes as well. Second, one can only exploit another person if one has high power over the distribution of outcomes. In low power situations, by contrast, one cannot easily exploit others because one has to fear being punished for selfish behavior. Finally, exploitation is only tempting in situations characterized by high conflict. That is, whereas one can gain much more by defection as compared to cooperation in high conflict situations, one can gain only slightly (if at all) more by defection in low conflict situations. In general, whenever a situation provides a possibility for exploitation, individuals' *unconditional concern for others' welfare* may be expressed, which is related to personality traits such as Machiavellianism and Honesty-Humility (see Tab. 1).

Second, interdependent situations may provide a possibility for *reciprocity*, meaning that an individual can (positively or negatively) react to another's prior behavior in a sequential or repeated interaction. Interestingly, the reciprocity affordance is arguably the only affordance that has no direct conceptual link to any dimension of interdependence as specified in Interdependence Theory. Although one may argue that future interdependence will provide a possibility to react to someone else's prior behavior in the long run, future interdependence does not capture the degree to which a person has the opportunity to positively or negatively reciprocate in a particular situation. In situations involving a possibility for reciprocity, individuals' *conditional concern for others' welfare* (i.e. their reactive prosocial tendencies) may be expressed, which is related to personality traits such as forgivingness and positive reciprocity (see Tab. 1).

Third, interdependent situations may involve a *temporal conflict* such that immediate (short-term) interests are at odds with long-term individual and/or collective outcomes.

Temporal conflict is arguably affected by the degree of future interdependence of a situation as this dimension of interdependence describes the magnitude with which one's own and the other's behavior can affect their outcomes in future situations. In situations involving temporal conflict, individuals' *self-regulation* of immediate impulse gratification may be expressed, which is related to personality traits such as Conscientiousness and self-control (see Tab. 1).

Fourth, interdependent situations may involve *dependence under uncertainty*, meaning that one's outcome depends on another's actions, but one has no knowledge about what the other will do. The affordance of dependence under uncertainty has direct links to the mutual dependence and the information uncertainty dimension of interdependence. That is, whereas mutual dependence generally describes the degree of dependence between interaction partners, information uncertainty describes how much individuals know about their interdependence. In turn, whenever a situation involves dependence under uncertainty, individuals' *beliefs about others' prosociality* may become expressed in behavior, which are related to personality traits such as trust propensity and (low) psychopathy (see Tab. 1).

Taken together, interdependent situations may provide four key affordances that are determined by the interdependence structure at hand, and each of these affordances will allow certain personality traits to become expressed in behavior. By implication, the relation of personality to behavior in interdependent situations will arguably result from (i.e., be moderated by) the affordances the situations provide and corresponding trait activation: Traits that are conceptually linked to any of the four psychological processes afforded in interdependent situations (i.e., unconditional concern for others' welfare, conditional concern for others' welfare, self-regulation, and beliefs about others' prosociality) should be activated in the presence of the corresponding affordance(s) and therefore relate to behavior.

Conversely traits that are not linked to any of the four psychological processes should not be activated in interdependent situations and therefore also not relate to behavior.

Supporting this reasoning, a recent meta-analysis (Thielmann et al., in press) investigating the relation between 51 personality traits and behavior in interdependent situations modelled in six commonly applied economic games (i.e., the Dictator Game, Ultimatum Game, Trust Game, Prisoner's Dilemma, Public Goods Game, and Commons Dilemma) showed that those traits related to any of the four psychological processes proposed to be afforded in interdependent situations mostly yielded stronger and significant associations with prosocial behavior across interdependent situations than those traits unrelated to any of these psychological processes. In particular, whereas 27 of the 33 traits that were hypothesized to be activated in interdependent situations showed significant correlations with behavior across situations, this was the case for only 5 out of 18 traits that were not hypothesized to be activated in interdependent situations.

On the level of the four affordances, the strongest relations were observed for traits (exclusively) linked to unconditional concern for others (as afforded by the possibility for exploitation). For instance, guilt proneness ("the predisposition to experience negative feelings about personal wrongdoing, even when the wrongdoing is private"; Cohen, Panter, & Turan, 2012, p. 355), HEXACO Honesty-Humility, and Social Value Orientation showed small to medium-sized positive correlations with prosocial behavior. In contrast, dispositional greed ("an insatiable desire for more resources, monetary or other"; Krekels & Pandelaere, 2015) and Machiavellianism ("a duplicitous interpersonal style, characterized by a cynical disregard for morality and a focus on self-interest and personal gain"; Muris, Merckelbach, Otgaar, & Meijer, 2017, p. 184) showed small to medium-sized negative correlations with prosocial behavior. The second largest correlations, in turn, were observed for traits linked to conditional concern for others (e.g., forgivingness, HEXACO Agreeableness) and beliefs

about others' prosociality (e.g., trust propensity, risk-taking). Whereas the former capture dispositional tendencies to react in a prosocial manner to transgressions by others—rather than to retaliate and take revenge (e.g., Ashton & Lee, 2007; Berry, Worthington, O'Connor, Parrott, & Wade, 2005; see also DeYoung in this volume)—the latter capture dispositional tendencies related to beliefs in others' prosociality and corresponding tendencies to take the risk of being exploited (e.g., Weber, Blais, & Betz, 2002; Yamagishi & Yamagishi, 1994). No consistent relations with prosocial behavior in interdependent situations, by contrast, emerged for traits linked to self-regulation, such as Conscientiousness (individual "differences in the tenacity of goal pursuit under distracting circumstances"; Denissen & Penke, 2008, p. 1285), impulsivity ("the tendency to deliberate less than most people of equal ability before taking action"; Dickman, 1990, p. 96), and self-control ("the ability to override or change one's inner responses, as well as to interrupt undesired behavioral tendencies (such as impulses) and refrain from acting on them"; Tangney, Baumeister, & Boone, 2004, p. 274).

Even more importantly, the meta-analysis by Thielmann et al. (in press) showed that objective characteristics of the interdependent structure linked to the four key affordances relevant in interdependent situations may indeed moderate the influence of personality on behavior in these situations. For example, Honesty-Humility and Social Value Orientation both showed stronger relations to prosocial behavior in situations characterized by high (rather than low) conflict of interests. Likewise, these traits yielded the (descriptively) strongest effects in situations of high power (e.g., the Dictator Game), whereas their effects were notably smaller in situations of low power (e.g., the Ultimatum Game as proposer). As detailed above, both conflict and power influence the degree to which exploitation is tempting and/or possible (see Tab. 1). Overall, the findings thus support the domain-specificity of affordances and corresponding trait activation (e.g., De Vries et al., 2016): Situations activate certain traits, but not others, which are then expressed in overt behavior. In interdependent

situations, it appears that it is particularly cues related to the possibility for exploitation—as well as, albeit less so, the possibility for reciprocity and the dependence under uncertainty—that activate related traits which are then expressed in prosocial behavior (Thielmann et al., in press). This also implies that those dimensions of interdependence that are linked to these affordances are likely to moderate the effects of related personality traits on behavior. Although the meta-analysis provides some first support for this prediction for some dimensions (i.e., power and conflict, as previously summarized), future research is needed to provide comparable evidence for the remaining dimensions of interdependence that are related to the key affordances relevant in interdependent situations (Tab. 1).

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Insert Table 1 here

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## Assessing Subjective Interdependence

The research presented so far manipulated interdependence through altering the structure of the interdependent situation (as modelled in economic games). In so doing, this research implicitly assumes that a change in the objective interdependence structure of the situation will be at least somewhat accurately perceived by individuals who will, in consequence, change their behavior accordingly. Indeed, experimentalists put considerable effort into ensuring that participants correctly understand the structure of the interdependent situation being modelled (e.g., Guala, 2005; Rand, Greene, Nowak, 2012), and consequently the common assumption has been that players directly act upon the deep structure of the situation (Hagen & Hammerstein, 2006). However, individuals may not always form an accurate subjective representation of the objective situation, or the cues at the surface may not sufficiently reflect the deep structure of the situation. For example, simply describing the Prisoner's Dilemma as a "community game" versus a "stock exchange game" has been

found to induce strong differences in the willingness to cooperate, in the sense that cooperation rates were considerably lower in the stock exchange framing than in the community framing (Liberman, Samuels, & Ross, 2004). Given that it is arguably not the objective situation that individuals act upon, but their subjective perception thereof (i.e., their understood context, or the so-called *psychological situation*), it is particularly important to understand how individuals form subjective representations of interdependence in social situations (Halevy, Kreps & De Dreu, 2019; Johns, 2006). Correspondingly, most scholars agree "that 'situations' only matter if they are perceived by the individuals in them" (Hogan, 2009, p. 249).

Earlier research has investigated subjective representations of some dimensions of interdependence in isolation and found that people can indeed infer the degree to which a situation involves mutual dependence (e.g., Ramamoorthy & Flood, 2004), conflict of interests (e.g., De Dreu, Koole, & Steinel, 2000), and power (e.g., Keltner et al., 2003). These perceived differences have, in turn, been shown to influence individuals' behavior (e.g., Bachrach et al., 2006). However, what was missing so far is an overarching scale that allows us to assess all sub-dimensions of interdependence as specified in Interdependence Theory at once. Recently, however, a multidimensional scale, the Situational Interdependence Scale (SIS; Gerpott et al., 2018), has been developed. The SIS is available as a 30-item and 10-item version with six and two items per dimension, respectively (see Tab. 2 for exemplary items).

Research using the SIS has found that individuals are indeed able to accurately differentiate between most—namely, five—dimensions of interdependence, but they cannot reliably assess situations with regard to the coordination dimension of interdependence (i.e., the degree to which an individual's behavior influences how a partner's behavior determines that individual's outcome). Specifically, the coordination items (i) showed high cross-loadings on the mutual dependence factor in an exploratory factor analysis, (ii) were *all*

positively correlated, including the reverse-keyed items, and (iii) were even difficult to classify as belonging to the coordination dimension by scholars highly familiar with Interdependence Theory. However, we consider it possible that future research may find alternative approaches to capture subjective representations of the interdependence structure that can also reliably assess perceptions of the coordination dimension.

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Insert Table 2 here

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In turn, the five-factor structure of interdependence perceptions (excluding the coordination dimension) generalized across in-situ and ex-situ raters of situations, and the sub-dimensions showed unique relations with individuals' emotions and behaviors (Gerpott et al., 2018). The SIS can be used to measure individuals' perceptions of interdependence across a wide variety of interdependent situations involving social interactions in laboratory and field settings. For example, the SIS has been successfully used in experience sampling studies to investigate perceptions of interdependence in daily life (Columbus, Molho, Righetti, & Balliet, 2019a). Specifically, romantic partners were found to strongly agree on their perceptions of interdependence in daily life situations, suggesting that such perceptions of interdependence are rooted in an interpersonal reality (Columbus, Molho, Righetti, & Balliet, 2019b). Moreover, perceived interdependence predicted prosocial behavior towards one's romantic partner, colleagues, and even strangers in daily life. In particular, perceived conflict of interests showed a strong negative association with self- and other-reported prosocial behavior, whereas mutual dependence showed a smaller, positive association (Columbus et al., 2019b).

As opposed to other situational taxonomies such as DIAMONDS (Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception; Rauthmann et al., 2014) or CAPTION (Complexity, Adversity, Positive Valence, Typicality, Importance, Humor, Negative Valence;

Parrigon, Woo, Tay, & Wang, 2017), the SIS exclusively addresses interdependence in *social* situations. That is, the SIS is a conceptually grounded instrument based on Interdependence Theory with a specific focus on social interactions. Correspondingly, the scale has been shown to account for unique variance in behavior in these (interdependent) situations (Gerpott et al., 2018). By contrast, the DIAMONDS and CAPTION scales seek to capture everyday situations at a broader level that can – but must not – involve interpersonal interactions. That is, both these scales were developed using different approaches than the theory-based scale development applied to propose the SIS.

In particular, the DIAMONDS dimensions were derived based on the Riverside Situational Q-Sort (for more information, see Rauthmann et al., 2014; Sherman, Nave, & Funder, 2010), which was initially developed to describe contexts in which personality characteristics might emerge (Rauthmann et al., 2014). The CAPTION scale, in turn, emerged from lexical analyses (i.e., sampling of adjectives and shortening this list through exploratory and confirmatory factor analyses). Taken together, the SIS thus provides a unique contribution to the literature on the measurement of situation characteristics by offering a theory-based instrument that can explain unique variance in social situations. In line with this reasoning, a recent integrative overview of situational taxonomies indicates that especially the power dimension of the SIS is not reflected in other situational taxonomies (Horstmann, Sherman, & Rauthmann, in press; Rauthmann & Horstmann, 2017). However, an aspect that the SIS shares with other situational taxonomies is that individuals' subjective assessment of situation characteristics are only marginally correlated with personality traits (Gerpott et al., 2018; Rauthmann et al., 2015), an issue we turn to next.

**The influence of personality on subjective representations of interdependent situations**

Research has repeatedly outlined that personality characteristics affect perceptions of situations in general, that is, across many classes of situations (Rauthmann & Sherman, 2017;

Rauthmann et al., 2015; Sherman, Nave, & Funder, 2013). A detailed description of this research and the relationship between personality and situation perception is provided in Rauthmann and colleagues' work (2015, see particularly Figure 1). Specifically, the authors propose that objective cues of a situation are subject to individuals' information processing as a function of various person aspects (i.e., traits, states, habits, knowledge, social roles), which then result in a subjective representation of the situation. For the context of interdependent situations, this entails that personality can influence how objective situation characteristics map onto subjective representations of interdependence in the situation. In line with this reasoning, evidence indeed suggests that personality traits related to prosocial tendencies (i.e., Social Value Orientation, HEXACO Honesty-Humility, and Big Five Agreeableness) influence perceptions of what denotes the best and worst strategy in conflict situations, in the sense that individuals with higher levels on these prosocial traits perceive cooperation—rather than competition—as the best strategy in such situations (Halevy, Cohen, Chou, Katz, & Panter, 2014).

Research has shown that perceptions of mutual dependence, conflict, and information certainty were influenced by broad personality traits as captured in the HEXACO model of personality (Ashton et al., 2004; Ashton & Lee, 2007). In contrast, perceptions of future interdependence were only slightly positively related to Openness to Experience, and perceptions of power were completely unrelated to the HEXACO personality traits (Gerpott et al., 2018). Figure 1 provides a graphic illustration of the meta-analytic findings across five studies ($N$ = 1,767) as reported in Gerpott et al. (2018). As is apparent, Honesty-Humility, Conscientiousness, and Openness to Experience were among the more important traits that relate to how individuals perceive situational interdependence. It should be noted, however, that the effects were relatively small, hardly exceeding $r$ = .10, which is in line with evidence from other situational taxonomies investigating the role of personality to understand the

construal of situations more generally (e.g., DIAMONDS, Rauthmann et al., 2014). Indeed, one may argue that "the small but reliable individual differences in situational construal […] may accumulate into large and consequential effects over time" (Sherman et al., 2013, p. 1), thus still being meaningful in and of itself. However, future research is certainly needed to clarify this issue. Therefore, we next turn to suggestions for future studies that may help to draw a more sophisticated picture about how personality traits may influence the link between objective characteristics of interdependent situations, subjective representations of interdependent situations, and corresponding behavior in interdependent situations.

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Insert Figure 1 here

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## Objective Versus Subjective Interdependent Situations and Behavior: A Research Agenda on the Role of the Person

So far, we have outlined the differences between the objective interdependence structure of social situations as conceptualized in Interdependence Theory (Kelley & Thibaut, 1978; Kelley et al., 2003) and individual's perceptions of interdependence in such situations (Gerpott et al., 2018). To recap, we have reviewed evidence indicating that people can reliably differentiate between five subjective dimensions of interdependence (Gerpott et al., 2018). Yet, one feature of the objective interdependence structure suggested by theory, namely the coordination dimension (i.e., basis of interdependence), could not be empirically differentiated from the other dimensions. Furthermore, we have discussed the role of personality traits for both, behavior in interdependent situations as a function of the objective interdependence structure (Thielmann et al., in press) and the transition from the objective situation to a subjective representation thereof (Gerpott et al., 2018). Combining these two lines of research has valuable implications for future research, as have other approaches to the

study of the person and the situation in interdependence situations. Figure 2 provides a summary of how the person and the (objective and subjective) situation may interact to predict behavior in interdependent situations. However, as we outline in what follows, not all depicted paths have received attention – and thus empirical support – in prior research. We therefore use Figure 2 as a starting point to propose a research agenda on the role of the person for behavior across situations that vary in interdependence.

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Insert Figure 2 here

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**The role of interdependence perceptions in linking personality and behavior**

Scholars have studied how the objective interdependence structure influences (moderates) the link between personality traits and individuals' behavior (see section "Affordances for the expression of personality in (objective) interdependent situations"). This is illustrated through path d in Figure 2. Furthermore, researchers have investigated how personality traits affect individuals' subjective representation of interdependent situations (see section "The influence of personality on subjective representations of interdependent situations"). This is depicted through path e in Figure 2, which proposes that personality can moderate the association between the objective and subjective interdependence in a situation (rather than having a direct effect of personality on subjective representation). This is because individuals generally tend to translate the objective cues describing interdependence in a situation into a more or less accurate subjective representation of interdependence in the situation (Balliet, Tybur, & Van Lange, 2017; Funder, 2009; Jussim, 1991; Rauthmann et al., 2014). As such, perceptions of interdependence are not predominantly social constructions, but they correspond largely to the objective situation. Yet, the extent to which the subjective

representation of interdependence matches the objective situation may be influenced by an individual's personality.

Much less research has, however, examined the role of individuals' subjective representations of interdependent situations in linking personality to behavior in a situation (Rauthmann & Sherman, 2019). Specifically, it is conceivable that depending on how individuals perceive a situation – and thus the affordances the situation provides – different personality traits may become activated, and individuals' levels on these traits will ultimately shape their behavior. In essence, this implies that the subjectively perceived interdependence in a social situation may moderate the relation between personality and behavior in the situation (path f in Figure 2), much like the objective interdependence has been found to moderate this very link (e.g., Thielmann et al., in press). In turn, prior theoretical models have also proposed a mediation account from personality traits via subjective representation of the situation to observable behavior (e.g., Funder, 2016; Rauthmann et al., 2015). That is, personality may shape individuals' perceptions of the situation, which may then determine individuals' behavior.

To illustrate this, let us reiterate the findings on trait-behavior and trait-perception links for Honesty-Humility as summarized above. On the one hand, recent meta-analytic evidence (Thielmann et al., in press) has shown that the (objective) degree of both conflict and power in interdependent situations moderate the link of Honesty-Humility to prosocial behavior. Specifically, Honesty-Humility yielded a stronger positive relation to prosocial behavior when conflict or power, respectively, were high rather than low. In turn, evidence on the link between Honesty-Humility and perceptions of interdependence (Gerpott et al., 2018; see Figure 1) showed that high levels of Honesty-Humility were related to lower perceived conflict, but not to perceived power, in interdependent situations. Taken together, this suggests that individuals high in Honesty-Humility may perceive less conflict in interdependent situations and are

*therefore* more likely to behave in a prosocial manner in these situations than individuals low in Honesty-Humility. However, the moderating role of power on the relation between Honesty-Humility and prosocial behavior does not seem to be attributable to differential perceptions of power by individuals high versus low in Honesty-Humility.

So far, however, research testing the role of subjective representations of interdependence in linking personality traits and behavior in interdependent situations is scarce (Columbus, Thielmann, et al., in press), and results have remained inconclusive. However, a consideration of the subjective representation of interdependence may actually allow for an even better mapping between situational affordances, personality traits, and behavior in interdependent situations. Specifically, given that individuals arguably act upon the subjectively perceived situation—which does not necessarily conform to the objectively available situation—such an approach will allow to take the perceived affordances of situations into account, which will then provide a basis for the expression of personality in behavior. We therefore call for a much stronger consideration of situation perception in future research studying behavior in interdependent situations to foster our understanding of the underlying processes that give rise to individual differences in prosocial behavior. This research should also broaden the scope of personality traits considered in this context, as prior research has mostly relied on traits conceptualized in basic personality models (most prominently the HEXACO model).

**The influence of the interaction partner on an actor's situation perception**

Another fruitful line of research may be to study how the personality and corresponding behavior of one's interaction partner determines the (perception of the) interdependence situation at hand. This relates to the ideas of Read (in this volume) and Wood (in this volume), who outline how the behavior of an individual influences the situation and thereby shapes the space of potential actions for the individual's subsequent action(s) – in

addition to influencing the potential actions of others in the environment. In other words, the *objective* situation and its interdependence structure is often not just a preset attribute, but it can be influenced by the individuals acting in the situation.

Following this line of reasoning, we propose that scholars should also investigate the influence of the interaction partner's attributes and reactions in shaping the interdependence structure in a situation and corresponding behaviors. For example, in a situation that involves high conflict of interests, a highly prosocial actor, who is both non-exploitative and forgiving, communicates – and then later demonstrates, through the way she behaves – that she is opting for the cooperative choice. In so doing, the actor not only changes the interaction partner's perceptions of conflict in the situation, but she actually tilts the *real* conflict. Conversely, an actor who behaves in a selfish and/or retaliatory manner may increase the (actual and perceived) conflict in the situation. In turn, a 'tit-for-tat' or 'justice' motivated actor may increase covariation of interests (and decrease conflict) in a repeated interaction in an even more direct manner, communicating the strategy "If I go down, you will go down too, but if I do well, you will do well too'). As such, the actor may indeed determine the objective – and hence subjectively perceived – interdependence structure of the situation, much like objective differences in the dimensions of interdependence can do. In other words, an actor's subjective representation of the situation may become objective features of the interaction partner's reality, which will, in turn, affect their optimal behavioral strategy.

More generally speaking, an interaction partner's personality and behavior, respectively, can be understood as providing affordances for the expression of one's own personality in behavior. For example, a partner's level of dispositional forgivingness may determine whether an actor can exploit the partner or not. That is, a partner high in forgivingness will likely be willing to tolerate another's transgression and even comply with a highly selfish request. Conversely, a partner low in forgivingness will not accept being

exploited, but rather retaliate if treated in a bad (unfair) manner. Thus, encountering a highly forgiving interaction partner will actually provide an opportunity to exploit, whereas encountering an unforgiving partner will not. This again suggests that, in repeated interactions, one's interaction partner's personality may determine the objective (and subjective) interdependence structure.

In line with this reasoning, research on behavior in negotiation situations—a class of interdependent situations in which individuals have to jointly come to an agreement—has already shown actor-partner interaction effects between HEXACO-Agreeableness (capturing dispositional forgivingness) and Honesty-Humility in predicting negotiation outcomes (Amistad, Dunlop, Ng, Anglim, Fells, 2018): High agreeable actors only obtained a higher outcome than low agreeable actors when encountering a partner high in Honesty-Humility; by contrast, high agreeable actors obtained a lower outcome than low agreeable individuals when encountering a partner low in Honesty-Humility. Future studies should extend this research to other types of interdependent situations and actor-partner trait combinations and study the effect of interaction partner's personality on subjective representations of interdependent situations more generally. In this regard, it may also be worthwhile to differentiate between the actor's perceptions of the partner's (stable) personality versus her situation-specific (i.e., state) motives and to investigate which of these have a stronger impact on the actor's perceptions of the interdependence structure in a specific situation.

Transferring these ideas to the applied setting, this research has implications in the work context, and particularly so for leadership in organizational work settings. Specifically, the prevalence of exploitative leadership – i.e., leadership with the primary intention to maximize the leader's personal outcome by exploiting others through acting in an individualistic manner or by exerting pressure and manipulating followers – is a severe problem in contemporary organizations (Schmid, Pircher Verdorfer, & Peus, 2019). The

challenge is that dominant people are often selected and/or self-select into leadership positions (Kalma, Visser & Peeters, 1993), which allows them to exploit (and influence) others even further. Followers, in turn, – because of their personality or because of the situation's pressure – frequently tolerate these behaviors, meaning that leaders get away with or are even extraordinary successful with their exploitative behaviors. Indeed, from a person-situation interaction perspective, it is likely that those followers that have higher conditional concern for others (e.g., high levels of Agreeableness) will most likely stay in the organization, whereas those low in forgiveness will leave. This is arguably attributable to individual differences in situation perception as a function of forgiveness-related dispositions, as well as in reactions to exploitative behaviors by others (e.g., leaders). In turn, to avoid the self-selection of exploitative individuals into positions in which they can do so, it might therefore be useful to include (indirect) measures of traits related to unconditional concern for others in the selection process of leaders, for example by including behavioral indicators in structured interviews, reference check procedures, or situational judgement tests (Peus, Braun & Frey, 2013; Taylor, Pajo, Cheung, & Stringfield, 2004). More generally, it could be a promising endeavor to match leader and follower traits to avoid that unfavorable combinations of leader and follower personalities trigger negative interaction dynamics in work settings.

**Interaction effects between the interdependence dimensions**

Finally, we consider it a promising endeavor to investigate potential interaction effects between the dimensions of interdependence, and how such interactions may relate to social behavior. Specifically, it remains an open question whether the effects of the different dimensions of interdependence on situation perception and behavior are similar in strength or not. For instance, we hypothesize that some dimensions may have a stronger impact on behavior than others, implying that dimensions may be combined in a compensatory manner. If this holds true, a high value on one dimension would overrule other dimensions, thus

sufficing to trigger a certain behavior. Alternatively, scholars may also argue that the dimensions of interdependence have synergistic effects, meaning that the effect of one dimension might depend on a high or low value on another dimension (Balliet & Joireman, 2011). For example, high power may only result in less prosocial behavior when conflict of interests is high but not when it is low. Likewise, high conflict of interests may only result in less cooperation when future interdependence is high but not when it is low. Whereas the test of such competing models has sparked much debate in other fields of research (e.g., Balliet, Li, & Joireman, 2011; Siemsen, Roth, & Balasubramanian, 2008), the question of whether the different dimensions of interdependence shape behavior independently of each other or rather in interaction has so far remained unexplored.

In this regard, it is also essentially unknown how the potential interaction between dimensions of interdependence may affect the relation of personality to prosocial behavior. For example, power and conflict of interests may both afford specific personality traits (e.g., Social Value Orientation, Honesty-Humility) to become expressed in behavior, but do we see a stronger relation between such traits and behavior when both these dimensions are high? That is, does a combination of high power and high conflict of interest, for instance, afford the expression of corresponding traits even more than any one dimension alone? Future research is needed to investigate how the interaction between dimensions of interdependence influences the affordances involved in the situation. Here again, we consider it a particularly promising approach to study individuals' perceptions of interdependence and how these may, in turn, affect the expression of personality in behavior. Overall, more complex models that consider the interplay of the different dimensions of (subjective) interdependence may help to provide a more fine-grained understanding about how the interdependence structure may drive differences in behavior across interdependent situations.

## Conclusion

In essence, behavior is a function of the person and the (perceived) situation (Lewin, 1935). While personality researchers have (at least more or less) agreed on some basic dimensions of personality (Ashton et al., 2004; McCrae & Costa, 1999), such a structured approach has long been missing in situation research (Halevey et al., 2019). More recently, however, “the idea [that] the situation is handled in the most happy-go-lucky-way” (Goffman, 1964, p. 63) has finally been abandoned and replaced by flourishing research on how to best describe situations by a few broad dimensions and how to measure corresponding perceptions. Specifically, multiple research teams have offered solutions to describing and measuring how individuals perceive and think about situations (Horstmann et al., in press). Herein, we have presented one of these approaches to measuring the situation that draws from Interdependence Theory (Kelley & Thibaut, 1978; Kelley et al., 2003) to capture how people think about their interdependence with others in social situations (Gerpott et al., 2018). Specifically, this research has shown that whereas six dimensions of interdependence can be used to describe the objective interdependence structure of situations, individuals seem to (subjectively) differentiate between only five dimensions. This mismatch between objective characteristics and subjective perceptions of interdependence may have important implications for behavior, not only in itself, but also in explaining how personality relates to behavior in interdependence situations. Although research has started to study these interactions between objective situation characteristics, subjective perceptions of interdependence, personality, and behavior, there is a clear need for additional research along these lines to provide a more differentiated understanding of these person-situation processes. Ultimately, such future research will help providing vital insights into how behavior evolves across a broad range of interdependent situations that people experience in their day-to-day interactions.

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**Table 1**. Situational affordances in interdependent situations, with preconditions in the structure of interdependence, corresponding psychological processes, and related traits than may be activated to guide behavior.

| **Situational affordance** | **Preconditions in the structure of interdependence** | **Psychological process** | **Related personality traits** |
|---|---|---|---|
| Possibility for exploitation | (Low) coordination; (High) power; (High) conflict | Unconditional concern for others' welfare | e.g., envy, Honesty-Humility, Machiavellianism |
| Possibility for reciprocity | – | Conditional concern for others' welfare | e.g., HEXACO agreeableness, forgivingness, positive reciprocity |
| Temporal conflict | (High) future interdependence | Self-regulation | e.g., Conscientiousness, impulsivity, self-control |
| Dependence under uncertainty | (High) level of dependence; (High) information uncertainty | Beliefs about others' prosociality | e.g., belief in a just world, trust propensity, psychopathy |

**Table 2.** Example items for the five dimensions of interdependence captured by the SIS (adapted from Gerpott et al., 2018)

| Dimension | Mutual Dependence | Power | Conflict | Coordination † | Future Interdependence | Information Certainty |
|---|---|---|---|---|---|---|
| **Definition** | Degree to which each person's outcomes are determined by how each person behaves in that situation. | Degree to which an individual determines their own and others' outcomes, while others do not influence their own outcome. | Degree to which the behavior that results in the best outcome for one individual results in the worst outcome for the other. | Degree to which an individual's behavior influences how a partner's behavior determines that individual's outcomes. | Degree to which own and others' behavior in the present situation can affect own and others behavior and outcomes in future interactions. | Degree to which a person knows their partner's preferred outcomes and how each person's actions influence each other's outcomes. |
| **Sample Item High** | What each of us does in this situation affects the other. | Who do you feel had more power to determine their own outcome in this situation? | Our preferred outcomes in this situation are conflicting. | Each person's outcomes rest on coordination with the partner's actions. | How we behave now will have consequences for future outcomes. | We both know what the other wants. |
| **Sample Item Low** | Whatever each of us does in this situation, our actions will not affect the other's outcomes | Who has the least amount of influence on the outcomes of this situation? | We can both obtain our preferred outcomes. | There is nothing I can do to influence how the other's actions affect me. | Our future interactions are not affected by the outcomes of this situation. | I don't think the other knows what I want. |

*Note.* The displayed items form the 10-item short version of the SIS. Items are assessed on a 5-point Likert scale ranging from 1 = completely disagree to 5 = completely agree., except the power scale that is assessed with different response anchors, namely 1 = definitely the other, 2 = maybe the other, 3 = neutral, 4 = maybe myself, 5 = definitely myself.

† This dimension could not be reliably differentiated by raters and was thus excluded from the final SIS.

**Figure 1.** Meta-analytic estimates of the relation between the SIS and HEXACO traits across 5 studies (own illustration based on Gerpott et al., 2018; N = 1,767)

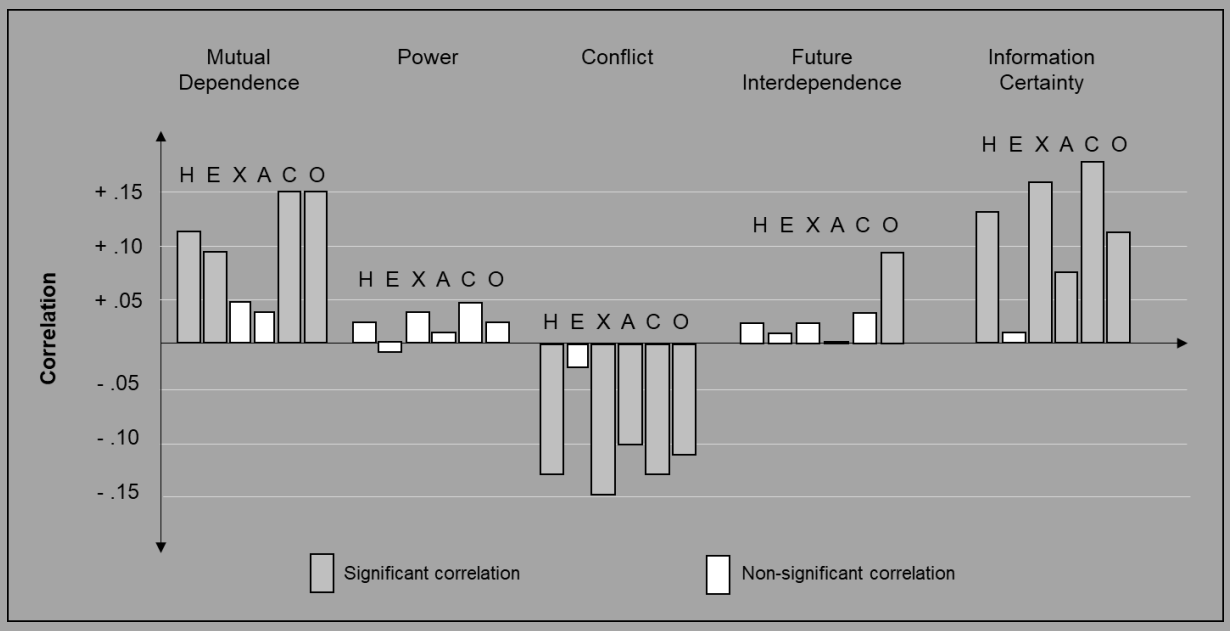
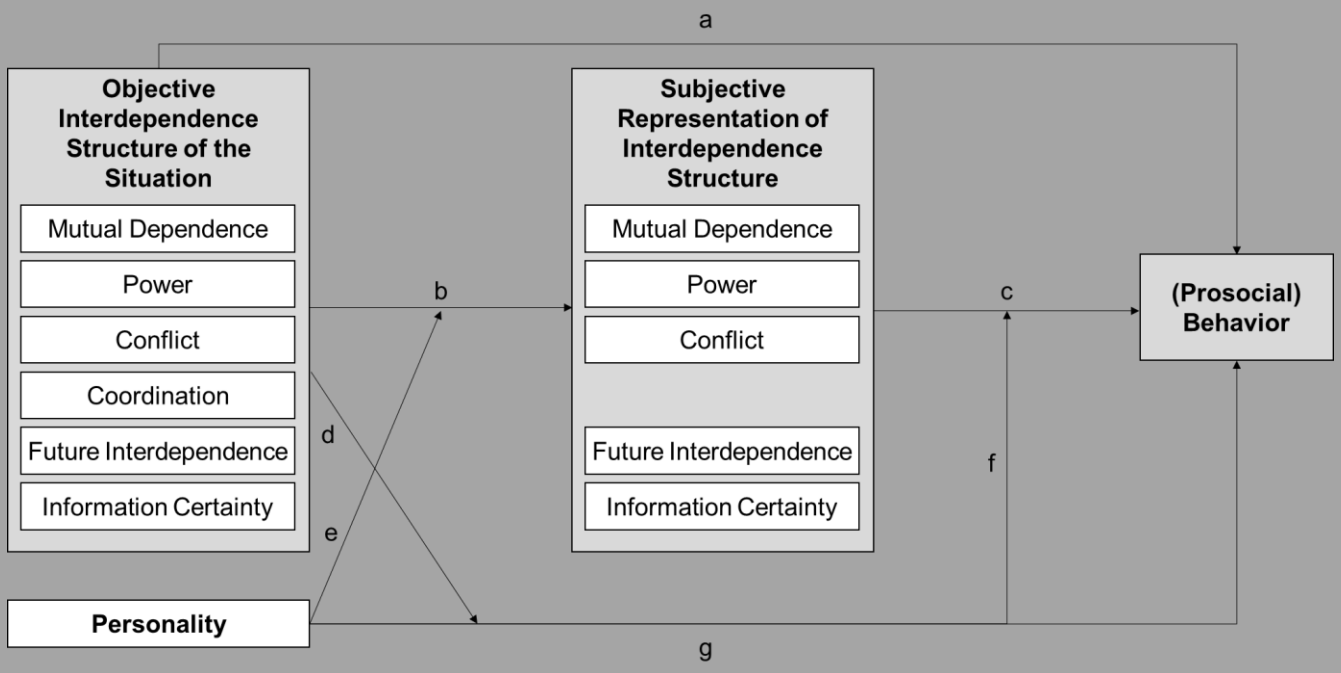


**Figure 2.** The interplay of personality, objective, and subjective interdependence, and behavior




*Note.* The coordination dimension is missing in the middle box because prior research based on the SIS (Gerpott et al., 2018) could not confirm that individuals can reliably differentiate situations according to the degree of coordination.