INDIVIDUAL DIFFERENCES IN BEHAVIOURAL REACTIVITY TO SITUATIONAL CUES

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ABSTRACT

A situation based-contingency captures an individual's pattern of behaviour across situations through a linear association between a behaviour and a psychologically-active situational variable. The two studies presented here examined the possibility of constructing situation-based contingencies, referred to as behavioural reactivity, for interpersonal behaviour. The situational features were interaction partners' warmth and agency, and the closeness and status of the social role. The aim was to examine the personality correlates of behavioural reactivity and its implications for complementarity and intraindividual variability in interpersonal behaviour. Both studies used the same sample. An event-contingent recording procedure was used in which 113 working adults completed a standardized form following interactions lasting 5 minutes or longer for a period of 20 days. They reported on their own behaviour, their perceptions of their interaction partner's behaviour, and their social role.

Study 1 focused on the implications of behavioural reactivity for the principles of complementarity. Although the principle of correspondence has been widely supported, there are mixed findings with respect to reciprocity. It was hypothesized that there are greater individual differences with respect to reciprocity than correspondence. Results showed that while participants differed primarily in the strength of their behavioural reactivity to perceived warmth in others, they differed in both the strength and the direction of their behavioural reactivity to perceived agency. Greater behavioural reactivity to perceived warmth was predicted by high Extraversion, whereas greater behavioural

reactivity to perceived agency in the direction of reciprocity was predicted by high trait dominance and low agentic interpersonal climate, namely the tendency to view others as submissive.

The second study examined whether individuals high on behavioural flux (intraindividual variability on a single pole of the Interpersonal Circle) were more behaviourally reactive to situational cues. Results showed that flux in agreeable behaviour and quarrelsome behaviour were predicted by both behavioural reactivity to perceptions of interaction partners' warmth and to the closeness of the social role, whereas flux in dominance was predicted by behavioural reactivity to hierarchical role. This indicates that flux is partially explained by behavioural reactivity to situational cues and does not solely represent erratic shifts in behaviour from one situation to the next.

In essence, this thesis demonstrated the possibility of capturing individuals' patterns of interpersonal behaviour across diverse situations through behavioural reactivity scores. The behavioural reactivity scores were correlated with personality traits and had implications for the principles of complementarity and for intraindividual variability in interpersonal behaviour.

ABBRÉGÉ

La réactivité comportementale décrit le comportement d'un individu à travers multiples situations par l'intermédiaire d'une association linéaire entre un comportement et une caractéristique situationnelle. Les deux études présentées ici ont examiné la possibilité d'évaluer la réactivité comportementale relative au comportement interpersonnel. Les comportements d'affiliation et de contrôle démontrés par l'autre personne durant une interaction, ainsi que l'intimité et le pouvoir des rôles respectifs des deux membres de la dyade, constituent les caractéristiques de la situation analysées. Le but de cette recherche était d'examiner les traits de personnalitéé associés à la réactivité comportementale et les implications de cette réactivité pour les principes de complémentarité et pour la variabilité intra-individuelle dans leur comportement interpersonnel. Le même échantillon est utilisé dans les deux études. Une méthode de contingence événementielle est utilisée. 113 adultes employés ont rempli un formulaire standardisé suivant leurs interactions interpersonnelles durant 5 minutes ou plus pendant une période de 20 jours. Ils ont décrit leur comportement, leurs perceptions du comportement de l'autre personne, et leur rôle vis-à-vis de l'autre personne.

La première étude a porté sur les implications de la réactivité comportementale pour les principes de complémentarité. Alors que le principe de correspondance a été largement soutenu, les résultats sont mixtes relatifs au principe de réciprocité. L'hypothèse évaluée était qu'il existe plus de variations entre individus au niveau de la réciprocité comparé à la correspondance. Les

résultats ont démontré que tandis que les participants se distinguaient principalement au niveau du degré de la réactivité comportementale à la perception d'affiliation, ils se distinguaient à la fois relatifs au degré et à la direction de la réactivité comportementale à la perception de contrôle. Une plus grande réactivité comportementale à la perception d'affiliation était associée à un niveau d'Extraversion plus élevé. La réactivité comportementale à la perception de contrôle dans la direction du principe de réciprocité était associée à une personnalité dominante et à la tendance à percevoir les autres comme étant plus soumis.

La deuxième étude visait à déterminer si les individus démontrant plus de variabilité intra-individuelle dans leur comportement interpersonnel étaient plus réactifs aux signaux interpersonnels. Les résultats indiquent que la variabilité intra-individuelle dans le comportement amical et dans le comportement hostile sont associées à une plus grande réactivité comportementale à la perception d'affiliation ainsi qu'à l'intimité du rôle. La variabilité intra-individuelle dans le comportement dominant était associée à une plus grande réactivité comportementale au statut du rôle exercé. Ces données suggèrent que la variabilité intra-individuelle dans le comportement interpersonnel est partiellement expliquée par la réactivité comportementale aux signaux interpersonnels et ne reflète pas uniquement des fluctuations incohérentes dans le comportement.

Essentiellement, cette recherche a démontré la possibilité de décrire le comportement interpersonnel d'une personne à travers multiples évènements par

l'intermédiaire de la réactivité comportementale. La réactivité comportementale est associée aux traits de personnalité et a des implications pour les principes de complémentarité et pour la variabilité intra-individuelle dans le comportement interpersonnel.

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PREFACE AND CONTRIBUTION OF AUTHORS

I designed the research questions, hypotheses and analyses presented in this thesis, using data collected for other purposes. Debbie Moskowitz, my supervisor, provided feedback on the numerous drafts of this thesis. David Zuroff provided input on the statistical analyses.

Data collected from this sample have previously been analyzed in other studies. The original study was designed by Debbie Moskowitz, and the data were collected by Elizabeth Foley, Jennifer Russell, Marc Fournier and Ella Vanderbilt. Sadikaj, Moskowitz and Zuroff (2011) used this sample in a study of how attachment orientation impacts affective reactions to perceptions of others. The data were also used in a validity study of the Interpersonal Grid, a measure to assess participants' perceptions of others' behaviour (Moskowitz & Zuroff, 2005a). The data were used in combination with data from other samples in a study of personality predictors of intraindividual variability in interpersonal behaviour (Moskowitz & Zuroff, 2005b). A subset of the sample was used in a study of the impact of intraindividual variability in interpersonal behaviour on workplace relationships (Côté, Moskowitz & Zuroff, 2011).

Of greater relevance to the present study, this sample was previously used in a study of the effects of context on complementarity (Moskowitz, Ho & Turcotte-Tremblay, 2007), a dissertation on interpersonal climate as a moderator of complementarity (Foley, 2006), and two studies of behavioural signatures in the interpersonal domain (Fournier, Moskowitz & Zuroff, 2008; Fournier, Moskowitz & Zuroff, 2009). The Fournier et al. (2008; 2009) studies examined

behavioural signatures by dividing interpersonal situations categorically into quadrants of the Interpersonal Circle based on the participants' perception of their interaction partners' behaviour. The categories were: agreeable-dominant, agreeable-submissive, quarrelsome-submissive and quarrelsome-dominant. Participants' mean behaviours in those situations were calculated over the event-contingent recording procedure, and their profiles across the four situations were examined.

The present study is distinct from past studies as none of the previous studies examined individual differences in complementarity as captured by behavioural reactivity to perceptions of others. Examining individual associations between the participants' behaviour and their perception of warmth or dominance in others and the distribution of these individual slopes compared to the average effect for the sample were novel contributions of this thesis to the investigation of mixed findings on reciprocity. Furthermore, none of the previous studies assessed the association between intraindividual variability in interpersonal behaviour and behavioural reactivity to perceptions of other's warmth and agency or to the closeness and status of the social role. Thus, this thesis offers novel contributions to the investigation of complementarity and the meaning of intraindividual variability in interpersonal behaviour.

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Chapter 1: General Introduction

The interplay of person and situation characteristics has been the subject of enquiry for more than 100 years (Moskowitz & Fournier, 2014). Several early theorists discussed ways in which features of the person and the situation could interact to produce behaviour (Moskowitz & Fournier, 2014). Lewin (1935) argued that personality should be understood relative to situations, and that people differed in how strongly they were influenced by the environment. The early trait theorist Allport believed that the activation of traits was influenced by situations (Allport, 1937; Zuroff, 1986). Rotter (1954; 1981) argued that the prediction of behaviour could be improved using personality characteristics defined specifically in relation to the situation of interest. Cattell (1965) proposed that behaviour could be predicted through a "behavioural specification equation" including both features of the person and the situation. The interaction between persons and situations remains a focus of enquiry, with contemporary research focusing on topics such as quantifying the degree of intraindividual variability in a construct, and identifying *if...then* situation-behaviour contingencies (Moskowitz & Fournier, 2014).

The Person-Situation Debate

While very early theorists focused on the interplay of characteristics of the person and of the situation in predicting behaviour, later research turned to their relative importance (Moskowitz & Fournier, 2014). The person-situation debate revolved around the utility of broad traits, given evidence of low cross-situational consistency in behaviour (Roberts, 2009; Swan & Seyle, 2005). Mischel (1968) triggered the debate by arguing that the data did not support the existence of traits, which he defined as highly generalized consistencies in people's behaviour across situations (Swan & Seyle, 2005). Mischel and others asserted that traits correlated with specific instances of behaviour at a maximum of 0.30 (Mischel, 1968; Ross & Nisbett, 1991).

Correlation between two instances of behaviour was reported to be even lower. In a study of conscientiousness among university students, one instance of conscientious behaviour correlated with another at around $r = 0.20$ (Mischel & Peake, 1982). Research examining distributions of people's behaviour across situations has demonstrated that the amount of within-person variability in behaviour is often greater or equal to the amount of between-person variability in behaviour (Fleeson, 2001; Fleeson & Gallagher, 2009; Fournier, Moskowitz & Zuroff, 2008).

Furthermore, individuals report almost the complete range of Big Five states during their daily lives (Fleeson, 2001; Fleeson & Gallagher, 2009). The distributions of extraverted states during daily life for extraverts and introverts overlap considerably. Extraverts regularly act introverted, and introverts regularly act extraverted (Fleeson & Gallagher, 2009). The difference between the two is not the frequency with which they report extremely introverted or extraverted states, but rather the frequency with which they enact behaviours in the mid-ranges of the spectrum (Fleeson & Gallagher, 2009). Extraverts more frequently report moderately extraverted behaviour, whereas introverts more frequently report moderately introverted behaviour (Fleeson & Gallagher, 2009).

Mischel's critique of trait-based approaches to personality had a major impact on the field of psychology (Swan & Seyle, 2005). Following the publication of Mischel's 1968 book, the importance of personality was placed in doubt (Swan & Seyle, 2005). There was a marked decline in the number of research articles published, graduate training programs, and dissertations in the field of personality psychology (Swan & Seyle, 2005). Since then, personality psychology has gradually regained the ground that it lost in the early 1970s, in part due to a series of vigorous rebuttals to Mischel's critique (Swan & Seyle, 2005).

An early counter-argument to the lack of utility of personality traits was the demonstration that behavioural aggregates, in other words people's mean behaviour across multiple situations, are stable and reliably related to ratings from standard personality inventories (Epstein, 1979; Moskowitz, 1982). Epstein (1979) argued that low correlations between two instances of behaviour are due to measurement error. Moskowitz demonstrated that the stability of a behavioural aggregate depended on how many instances of behaviour were aggregated (Brown & Moskowitz, 1998; Moskowitz & Schwarz, 1982). More specifically, Brown and Moskowitz (1998) found that aggregates of interpersonal behaviour showed much greater stability when measured over 20 days (coefficient α between 0.83 and 0.90) than when measured over 4 days (coefficient α between 0.45 and 0.54). Thus, increasing the number of behaviour ratings included in the aggregate will influence whether a behaviour dimension appears more like a state or a trait (Moskowitz, 2009).

Since the publication of Mischel's 1968 book, several studies have demonstrated the stability and predictive utility of personality traits over the lifespan. Personality trait levels in elementary school are predictive of trait levels in midlife (Hampson & Goldberg, 2006). Traits show moderate to high stability in adulthood (Rantanen, Metsäpelto, Feldt, Pulkkinen & Kokko, 2007). They are predictive of a variety of major life outcomes, such as happiness, quality of relationships, divorce, occupational attainment, socioeconomic status, criminal involvement, health and even mortality (Hampson, Goldberg, Vogt & Dubanoski, 2006; Ozer & Benet-Martinez, 2006; Roberts, Kuncel, Shiner, Caspi & Goldberg, 2007). While it is true that behaviour is inconsistent across situations, traits show considerable stability and predictive utility over time.

Intraindividual Variability

Meanwhile, there has been increasing recognition that inconsistency in people's behaviour across situations is meaningful and worthy of study. There has been growing interest in constructs that quantify intraindividual variability (Eid & Diener, 1999; Eizenman, Nesselroade, Featherman & Rowe, 1997; Fleeson, 2001; Foltz, Barber, Weinryb, Morse & Chittams, 1999; Kernis, Grannemann, & Mathis, 1991; Kuppens, Van Mechelen, Nezlek, Dossche & Timmermans, 2007; La Guardia, Ryan, Couchman & Deci, 2000; Moskowitz & Zuroff, 2004; Moskowitz & Zuroff, 2005b; Timmermans, Van Mechelen & Kuppens, 2010). As intraindividual variability constructs quantify a person's degree of variability across situations, they are constructs that combine information both about the person and the situation (Moskowitz & Fournier, 2014). They have been shown to be stable, distinct from mean levels, and predictive of important outcomes. Typically, the standard deviation is used to measure intraindividual variability.

Intraindividual variability in affect is a stable feature of the individual (Eid & Diener, 1999). It is related to affect valence, self-esteem, agreeableness, neuroticism and depression (Kuppens et al., 2007). Older adults fluctuate less in positive and negative affect than younger adults (Rocke, Li & Smith, 2009). There is a reversed U-shaped curve between adolescent girls' emotional variability and the number of conflicts they have with their mother (Lichtwarck-Aschoff, Kunnen & van Geert, 2009).

Intraindividual variability in Big Five states is also a stable feature of the individual (Fleeson, 2001). Within-person variability in perceived control is a stable individual difference in older adults that predicts mortality 5 years later (Eizenman et al., 1997). Within-person variability in self-esteem moderates the association between self-esteem and depression (Kernis et al., 1991). Individual differences in intraindividual variability in behaviour have even been

documented in non-human animals, namely hermit crabs and Ward's damselfish (Stamps, Briffa & Biro, 2012).

Behavioural Signatures

Another response to the controversy over cross-situation variability in behaviour was to examine idiographic patterns of behaviour across different types of situation, referred to as behavioural signatures (Shoda, Mischel & Wright, 1994). Proponents of behavioural signatures argued that these patterns of behaviour represented both a stable and a meaningful aspect of personality (Shoda et al., 1994). They conceptualized behavioural signatures as *if... then* behavioural contingencies, such that if a given situation arose, then an individual would display a certain behavioural response.

Shoda et al. (1994) assessed behavioural signatures of 84 children aged 6 to 13 in a residential camp setting. They found that the children showed distinctive and stable behaviour-situation associations, or behavioural signatures, across situations such as being warned by adults or approached by peers. They concluded that these idiographic patterns of behaviour across situations formed a meaningful and enduring aspect of personality.

Fournier et al. (2008) examined behavioural signatures for interpersonal behaviour (agreeable, quarrelsome, dominant and submissive behaviours). They used an event-contingent-recording procedure in which community adults reported on their own and others' behaviour during naturally-occurring interpersonal interactions over the course of 20 days. Participants displayed distinctive and stable patterns of interpersonal behaviour across four situations defined by their perceptions of their interaction partner's behaviour, namely agreeable-dominant, agreeable-submissive, quarrelsome-dominant and quarrelsome-submissive. They concluded that behavioural signatures constitute a stable aspect of interpersonal functioning.

Smith, Shoda, Cumming and Smoll (2009) constructed behavioural signatures for youth baseball coaches. Trained observers rated the coaches' supportive, punitive and instructive behaviour during games. Situations were divided into categories based on whether the team was winning, losing, or tied. Results showed that most coaches displayed stable and distinctive idiographic patterns of supportive and instructive behaviour across these situations. Overall rates of supportive, punitive and instructional behaviours accounted for little variance in the children's liking of their coaches. However, certain behavioural signatures, such as *if* winning, *then* supportive or *if* losing, *then* punitive, were significantly related to the athletes' liking of their coaches, whereas others (e.g. *if* losing, *then* supportive or *if* winning, *then* punitive) were not.

Taken together, these studies demonstrate that stable and distinctive behavioural signatures can be identified in both adults and children. Idiographic patterns of behaviour across situations were found with a variety of behaviours and in a variety of situations, using behavioural data obtained both through self-report and ratings by trained observers. In Smith and colleagues' (2009) study, behavioural signatures were more predictive than aggregates of the same behaviours of how much others liked the individual. Consistent with Mischel's social cognitive approach to personality, these studies indicate that individuals' situation-behaviour patterns are a meaningful aspect of personality.

Situation-Based Contingencies

While behavioural signatures describe patterns of behaviour from one situation to the next, a psychologically active feature of the situation that fluctuates along with the behaviour must be identified to explain why fluctuations in behaviour occur (Furr, 2009; Shoda et al., 1994). Although causality cannot be established in the absence of experimental manipulation, the identification of a psychologically active feature of the situation that fluctuates along with a

behaviour suggests that fluctuations in the situational feature may explain cross-situational fluctuations in the behaviour (Fleeson, 2007; Furr, 2009; Shoda et al., 1994). One way to identify such a situational feature is through the construction of a situation-based contingency, in other words a linear association between a behaviour and a situational characteristic (Fleeson, 2007; Furr, 2009). Advances in multi-level modeling have made it possible to capture each participant's unique linear association between a behaviour and a situational characteristic across multiple occasions using random effects, as well as identifying the average association between the behaviour and the situational characteristic for the sample as a whole (the main effect; Smith et al., 2009).

A situation-based contingency captures the degree to which an individual adjusts their behaviour based on the level to which a situational feature is present, as well as the direction of the behaviour change. For example, some individuals may display more of the behaviour when there is a greater degree of the situational characteristic present, whereas other people may show little association between the behaviour and the situational characteristic. Other individuals yet may decrease the behaviour when there is a greater degree of the situational feature. An advantage of situation-based contingencies compared to traditional behavioural signatures is that continuous situational characteristics as well as categories of situations may be used (Fleeson, 2007). Thus, situation-based contingencies need not dichotomize continuous situational characteristics, although categorical situational characteristics may also be used.

Fleeson (2007) constructed situation-based contingencies for Five Factor Agreeableness, Conscientiousness, Emotional Stability and Extraversion states using an experience-sampling procedure. Multilevel models were used to test the associations between Five Factor states and situational factors, and to determine whether participants differed reliably in those associations.

Fluctuations in Five Factor states were significantly associated with fluctuations in situational characteristics such as the task orientation of the situation and the friendliness of the other people present. The Five Factors differed with respect to which situational characteristics they were correlated with. Participants differed in the strength and sometimes the direction of the correlations. Essentially, results showed that situation-based contingencies can be constructed for Five Factor states.

Greater intraindividual variability in Five Factor states was predicted by greater reactivity of the state to situational cues (Fleeson, 2007). Individuals with more within-person variability in Agreeableness were more reactive to the task orientation of the situation (Fleeson, 2007). Higher within-person variability in Conscientiousness was associated with greater reactivity to the anonymity and task orientation of the situation and to the friendliness and status of the other people present (Fleeson, 2007). Greater within-person variability in Extraversion and Emotional Stability were likewise associated with greater reactivity to the anonymity and task orientation of the situation, and to the other people's status (Fleeson, 2007). Fleeson concluded that cross-situational variability in Five Factor states is meaningful and related to situational characteristics.

After constructing standard behavioural signatures for coaches' behaviour, Smith et al. (2009) further examined the coaches' situation-based contingencies. They used multilevel modeling to test for linear associations between the coaches' behaviour and game score. Coaches differed significantly and reliably in how much they adjusted their supportive and instructive behaviour based on the degree to which their team was winning or losing. The average coach's punitive behaviour showed a significant negative correlation with game score. The authors concluded that the coaches displayed linear associations between their supportive, instructive and punitive coaching behaviour and the event-level game score.

Minbashian, Wood and Beckmann (2010) constructed situation-based contingencies for state Conscientiousness in the workplace. They gathered experience-sampling data from managers, and then used multilevel modeling to test for linear associations between state Conscientiousness and task demand (composed of task urgency and task difficulty). Results showed that state Conscientiousness was significantly associated with momentary task urgency and task difficulty, but also that there was significant variation among participants in how much they adjusted their state Conscientiousness to the momentary demands of the task.

Moreover, Minbashian and colleagues (2010) found that situation-based contingencies for state Conscientiousness based on task demand were predicted by, although not redundant with, lower trait Conscientiousness and higher need for cognition. The situation-based contingencies in turn predicted adaptive performance on a problem-solving task containing items of varying difficulty, indicating that participants who adjusted their state Conscientiousness more to the demands of the task maintained their performance better in the face of increasing task complexity.

The variation in situation-based contingencies between individuals (Fleeson, 2007; Minbashian et al., 2010; Smith et al., 2009) indicates that they capture a person-situation interaction. Different people adjust their behaviour to different degrees in response to changing levels of a situational characteristic. Since situation-based contingencies differ significantly between individuals (Fleeson, 2007; Minbashian et al., 2010; Smith et al., 2009), they may be predictable by personality traits or predict relevant outcomes for the individual, such as in the study by Minbashian and colleagues (2010).

It remains unclear whether situation-based contingencies could be identified for other behaviours, and whether these contingencies would also vary significantly between individuals

and be predicted by personality traits. One major impediment in constructing situation-based contingencies for other behaviours or states is the lack of a comprehensive taxonomy of situations (Roberts, 2007; Swan & Seyle, 2005). It can be difficult to identify a continuous psychologically-active situational characteristic that may fluctuate along with a given behaviour from one situation to the next. For example, Fleeson (2007) considered the situational characteristics that he tested in regards to fluctuations in Five Factor states as exploratory.

The Interpersonal Circle

The interpersonal circle model of interpersonal behaviour (Wiggins, 1991) is a useful model for studying situation-based contingencies, because it can be employed to describe interpersonal behaviour, traits, and situations. It posits links between interpersonal situations and behaviours, and so suggests situational cues that can be used for situation-based contingencies. Interpersonal behaviour is central to human psychological functioning (Strack & Horowitz, 2011), with implications for romantic relationships (e.g. Sadikaj, Moskowitz & Zuroff, 2011), workplace adjustment (Côté, Moskowitz & Zuroff, 2012), and psychopathology (e.g. Kachin, Newman & Pincus, 2001; Russell, Moskowitz, Zuroff, Sookman & Paris, 2007). Interpersonal situation-based contingencies, in other words how a person adjusts their behaviour to situational cues, may have implications for interpersonal functioning in a variety of domains, and hence for psychological functioning.

Several versions of the Interpersonal Circle or Circumplex have been proposed, which typically describe interpersonal behaviour with two major axes, love and status (Carson, 1969; Kiesler, 1983; Leary, 1957; Wiggins, 1982). The version of the Interpersonal Circle used here describes interpersonal behaviour using two orthogonal axes (see Figure 1.1), one referring to communal behaviour and the other referring to agentic behavior. The communal axis describes

behaviour on a continuum from agreeableness to quarrelsomeness. An example of an agreeable behaviour is expressing reassurance, whereas a sample quarrelsome behaviour is making a sarcastic comment (Moskowitz, 2009). The agentic axis describes behaviour on a continuum from dominance to submissiveness. An instance of a dominant behaviour is setting a goal for another person, whereas a sample submissive behaviour is not expressing disagreement when thinking it (Moskowitz, 2009). The two axes can be combined to characterize interpersonal behaviour. For example, a supervisor who sets goals for supervisees and is supportive of them is displaying both dominant and agreeable behaviour. A supervisor who sets goals for supervisees but is sarcastic with them is displaying both dominant and quarrelsome behaviour (Moskowitz, 2009). The position of a specific behaviour in the Interpersonal Circle can be identified using the communal and agentic axis as Cartesian coordinates. The Interpersonal Circle can further be used to describe interpersonal traits. For instance, a person can be characterized as high on trait dominance or agreeableness (e.g. Wiggins, 1979).

Moreover, the Interpersonal Circle can be used to define interpersonal situations (Fournier et al., 2008; Moskowitz & Zuroff, 2005a; Roberts, 2007). One option is to define situations categorically according to the participant's perceptions of their interaction partner's behaviour (Fournier et al., 2008; Moskowitz & Zuroff, 2005a). Interactions can be classified based on the quadrant of the Interpersonal Circle that the individual perceives their interaction partner's behaviour as occupying, for example submissive-quarrelsome or dominant-agreeable (Fournier et al., 2008). Alternatively, the target individual's perceptions of their interaction partner's behaviour can be described continuously using the axes of the Interpersonal Circle (Moskowitz & Zuroff, 2005a). Interpersonal situations can further be described based on the agency and communion of the interaction partner's social roles (Moskowitz, 2009; Roberts,

2007). For example, marriage is high in communion whereas acquaintanceship is lower (Moskowitz, 2009). The role of supervisor is higher in agency than the role of supervisee (Roberts, 2007). People are more agentic when in the role of supervisor and less agentic when in the role of supervisee (Moskowitz, Suh & Desaulniers, 1994).

Intraindividual variability (e.g. Moskowitz & Zuroff, 2004; 2005b) has previously been studied with respect to interpersonal behaviour. Intraindividual variability in interpersonal behaviour is both a stable feature of the individual (Moskowitz & Zuroff, 2004; 2005b) and related to intraindividual variability in affect (Timmermans et al., 2010). Intraindividual variability in interpersonal behaviour has been studied with regards to the individual's cross-situational variability on a single dimension of behaviour, such as dominance. This type of variability, referred to as *flux*, can be measured using the individual's standard deviation in behaviour scores across multiple events (Moskowitz & Zuroff, 2004).

Spin is a second type of intraindividual variability that has been studied in the context of interpersonal behaviour (Moskowitz & Zuroff, 2004). Spin is defined using the circular geometry of the Interpersonal Circle. First, the two axes of the Interpersonal Circle, which can be viewed as Cartesian coordinates, are transformed into polar coordinates. With polar coordinates, the position of a behaviour within the Interpersonal Circle is no longer described using its position on the x (communal) and y (agentic) axes, but rather with a vector of length r and an angle θ from the horizontal axis. Spin is obtained from the individual's standard deviation of θ across multiple situations, and represents intraindividual variability in interpersonal style across situations (Moskowitz & Zuroff, 2004). For example, an individual high on spin may start the day by being agreeable with a coworker, then become dominant by

making a request, next is quarrelsome when the coworker takes too long to comply, and finally becomes submissive to repair the relationship (Moskowitz, 2009).

High levels of intraindividual variability in interpersonal behaviour appear to be problematic. Borderline personality disorder is characterized by high levels of both flux and spin (Russell, Moskowitz, Zuroff, Sookman & Paris, 2007). Individuals high on anxiety show higher levels of flux (Rappaport, Moskowitz & D'Antono, 2014). Côté, Moskowitz and Zuroff (2012) found that individuals high on spin report more distant relationships at work. High spinners' coworkers in turn were less satisfied and avoided high spinners with whom they were well acquainted. This last finding was mediated by the negative affect coworkers reported experiencing when interacting with high spinners. On a more theoretical level, interpersonal models of personality pathology makes links between personality pathology and patterns of intraindividual variability in interpersonal behaviour (Pincus & Hopwood, 2012).

In essence, research thus far has demonstrated that both flux and spin are stable features of the individual. Higher levels of flux and spin appear to be problematic as they are associated with psychopathology and relative social isolation. An issue that still remains unclear is whether intraindividual variability in interpersonal behaviour captures erratic behaviour, or whether precipitating factors to changes in behaviour can be identified.

Complementarity

The primary way in which interpersonal theory posits links between situations and interpersonal behaviour is through the principles of complementarity (e.g. Kiesler, 1983; Sadler, Ethier & Woody, 2011). The correspondence principle states that interaction partners tend to match each other in their levels of communal behaviour (Kiesler, 1983). The reciprocity principle states that interaction partners tend to show opposing levels of agency, such that

dominance invites submissiveness and submissiveness invites dominance (Kiesler, 1983). People are more satisfied with interactions in which complementarity occurs, and like each other more (Dryer & Horowitz, 1997; Markey, Lowmaster & Eichler, 2010; Tiedens & Fragale, 2003).

A recent development in complementarity research is the joystick technique, in which observers can rate participants' communal and agentic behaviour from one moment to the next during videotaped interactions (Lizdik, Sadler, Woody, Ethier, Malet, 2012; Sadler, Ethier, Gunn, Duong & Woody, 2009; Thomas, Hopwood, Woody, Ethier & Sadler, 2013). This method permits the study of cyclical entrainment in dyadic interaction partners' behaviour. Findings showed that consistent with interpersonal theory, interaction partners' communal behaviours were strongly in phase (showing correspondence) while their agentic behaviours were strongly out of phase and inversely related (showing reciprocity) for the majority of dyads (Sadler et al., 2009).

A person's behaviour invites a complementary response in their interaction partner, but does not evoke it (Horowitz, Wilson, Turan, Zolotsev, Constantino & Henderson, 2006; Kiesler, 1983). A person is not forced to respond in a complementary manner and may choose not to (Horowitz et al., 2006). Moreover, while the principle of correspondence has been widely supported (e.g. Bluhm, Widiger & Miele, 1990; Sadler, Ethier & Woody, 2011), there have been mixed findings with respect to reciprocity (Blumberg & Hokanson, 1983; Bluhm, et al., 1990; Roger & Schumacher, 1983). Studies have shown dominance eliciting dominance (Blumberg & Hokanson, 1983), dominance eliciting dominance and submissiveness eliciting submissiveness (Roger & Schumacher, 1983), and participants acting in accordance with their agentic trait levels instead of adjusting their agentic behaviour to their interaction partner's (Bluhm, et al., 1990).

Several explanations of the mixed findings on reciprocity have been proposed. One issue with the previously mentioned studies is that complementarity was examined during interactions between previously unacquainted individuals in the lab, one of which was often a confederate enacting a specific interpersonal style. Hence, the findings may not generalize to naturally-occurring interactions in daily life. Factors that have been explored with respect to the mixed findings on reciprocity are the degree of acquaintance between the interaction partners (Markey & Kurtz, 2006), or the context in which the interactions occur (Moskowitz, Ho & Turcotte-Tremblay, 2007).

Markey and Kurtz (2006) studied complementarity in interactions among college roommates after 2 weeks and 15 weeks of living together. While the roommates did not display complementarity in their behaviour after 2 weeks of knowing each other, they did behave in a complementary manner after 15 weeks. Thus, the lack of acquaintance between the interaction partners is one explanation for the mixed findings on reciprocity in the Blumberg and Hokanson (1983), Roger and Schumacher (1983) and Bluhm and colleagues (1990) studies.

Moskowitz, Ho and Turcotte-Tremblay (2007) used an event-contingent recording (ECR) procedure to examine complementarity in naturalistic settings. Participants reported on their own behaviour and their interaction partner's behaviour during interactions in their daily lives. Results showed that correspondence along the communal axis was found in all settings but was stronger in non-work settings than in work settings. Reciprocity along the agentic axis was found in work settings but not in non-work settings. Moreover, participants reported a greater degree of reciprocity when they were in a high status role compared to a low status role. Thus, Moskowitz and colleagues suggest that reciprocity may be found in certain contexts in naturalistic settings.

Behavioural Reactivity

An explanation that has not been adequately explored in connection with the mixed findings on reciprocity is variation among individuals in how they respond to their perceptions of others' behaviour. Tracey (2005) and Foley (2006) reported variation among individuals with respect to complementarity. However, the extent of this variation has not been fully explored. There has been a call for more research focusing on the individual (Hamaker, Dolan & Molenaar, 2005; Molenaar & Campbell, 2009). Findings that hold for a representative sample of participants may not hold for the individual participants in that sample, given that each individual is fundamentally unique (Hamaker et al., 2005). Interindividual and intraindividual variability are separate phenomena and associations that are present at one level are often not found at the other level (Hamaker et al., 2005; Molenaar & Campbell, 2009).

Situation-based contingencies for interpersonal behaviour can be interpreted as behavioural reactivity. Behavioural reactivity is defined as the linear association (i.e. the slope) between an individual's interpersonal behaviour and a situational cue. It captures a person's pattern of behaviour across situations in response to varying levels of the situational feature. As such, it is a variable that combines information both about the person and the situation, similar to flux and spin. Although causality cannot be established without experimental manipulation, one interpretation of a linear association between a person's behaviour and a psychologically-active situational cue is that the individual adjusts their behaviour in response to fluctuations in the situational feature. Situational cues that may be relevant to interpersonal behaviour include perceptions of interaction partners' warmth or agency, and the closeness or status of the individual's social role.

Examining participants' behavioural reactivity to their interaction partners' behaviour allows the assessment of individual differences in correspondence and reciprocity. Some individuals may display behavioural patterns that are consistent with the complementarity principles while others do not, or individuals may vary in the strength of their response. In particular, there is reason to expect differences between individuals with respect to the principle of reciprocity, in light of the mixed findings in the literature. Different people may show different responses to their perceptions of agency in others. Some people may respond to dominance with submissiveness and submissiveness with dominance in accordance with the reciprocity principle, whereas others may respond to dominance with dominance and submissiveness with submissiveness. Others may not adjust their agentic behaviour based on their perception of agency in others, but instead act in accordance with their agentic personality disposition, similar to the results reported by Bluhm, et al. (1990).

The direction of behavioural reactivity to perceived warmth or agency provides information about the individual's overall pattern of responding, for example whether they respond to dominance with dominance or with submissiveness. In other words, the sign of an individual's behavioural reactivity score provides information about whether they adhere to the principles of complementarity. The numerical value of the slope provides information about the strength of the relation, meaning how much the participant adapts their behaviour to their perceptions of their interaction partners' behaviour.

Interpersonal behavioural reactivity to situational cues has the potential to partially explain intraindividual variability in interpersonal behaviour. As mentioned previously, Fleeson (2007) found that the strength of the association between a person's Five Factor state and situational cues was associated with that individual's overall level of intraindividual variability in

that Five Factor state. This finding indicated that a person's degree of intraindividual variability in Five Factor states was partially explained by how much that person adjusted their Five Factor states to features of the situation. It is not clear if the same relation would exist for interpersonal behaviour, such that individuals who are high on flux on one of the poles of the Interpersonal Circle would also have a greater degree of behavioural reactivity on that pole. The presence of such an association would suggest that intraindividual variability in interpersonal behaviour can partially be explained by how much an individual adjusts their behaviour to situational cues.

Differences between individuals in situation-based contingencies suggest that they may be predicted by, although not be redundant with traits. Minbashian and colleagues (2010) found that situation-based contingencies for Conscientiousness based on task urgency and difficulty were predicted by, although not redundant with, trait Conscientiousness and need for cognition. The contingencies in turn predicted adaptive performance on a cognitive task. Behavioural reactivity may similarly be predicted by traits, perhaps interpersonal traits or the Five Factor traits, as these have previously been linked to intraindividual variability in interpersonal behaviour (Moskowitz & Zuroff, 2004).

Thesis Objectives

The aim of this thesis was to determine whether distinct interpersonal behavioural reactivity scores could be constructed for adults working in the community. This would indicate that different people adjust their agreeable, quarrelsome, dominant and submissive behaviour differently to interpersonal cues such as their perception of their interaction partners' warmth or agency, and the closeness and status of their social role. This research examined the personality correlates of behavioural reactivity, and its implications for complementarity and intraindividual variability in interpersonal behaviour.

The first study examined the implications of interpersonal behavioural reactivity for the principles of complementarity, especially the principle of reciprocity. Associations between personality traits and behavioural reactivity to perceived agency and warmth in others were also assessed. The presence of such associations would indicate that personality traits predict patterns of interpersonal behaviour across situations.

The second study addressed whether intraindividual variability in interpersonal behaviour is predicted by participants' degree of behavioural reactivity to situational cues. This would indicate that intraindividual variability in interpersonal behaviour is not entirely random, but can partially be explained by the degree to which an individual adjusts their behaviour to features of the situation.

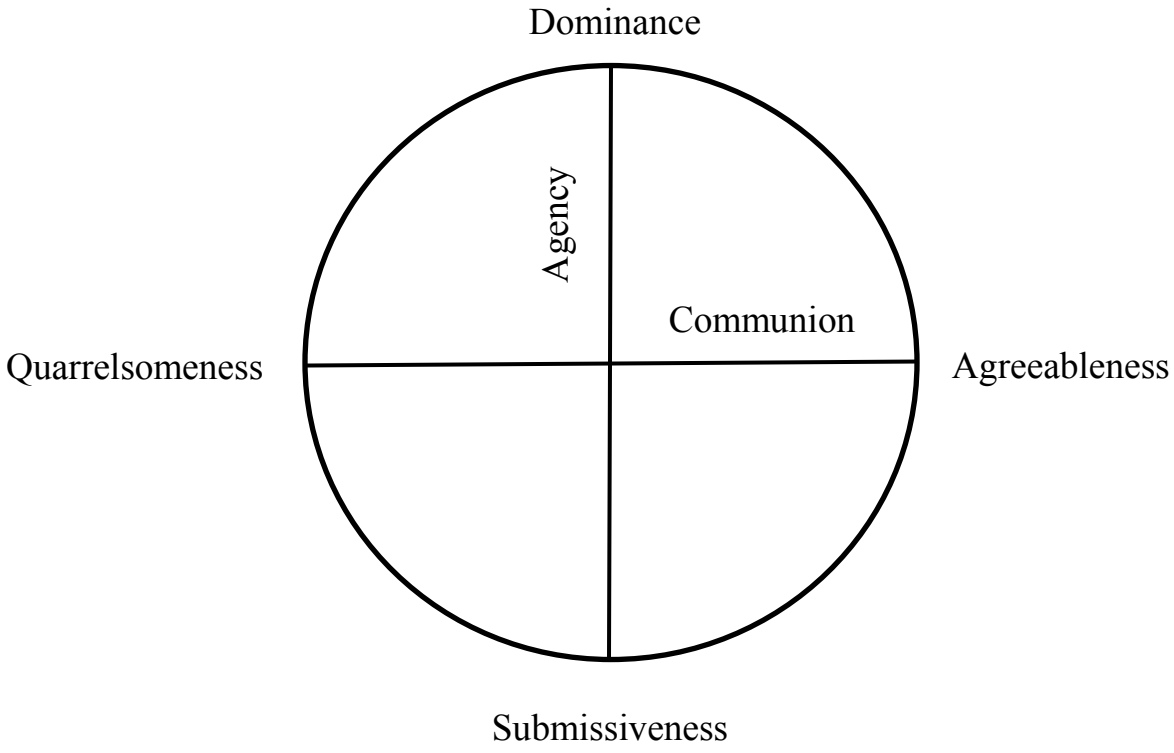

Figure 1.1. The Interpersonal Circle.

CHAPTER 2

STUDY 1: INDIVIDUAL DIFFERENCES IN COMPLEMENTARITY

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Abstract

The principles of complementarity are central to interpersonal theory. While the principle of correspondence has been widely supported, there are mixed findings with respect to reciprocity. It was hypothesized that there are greater individual differences with respect to reciprocity. 113 working adults were tested with an event-contingent recording procedure. While participants differed primarily in the strength of their behavioural reactivity to perceived warmth in others, they differed in both the strength and the direction of their behavioural reactivity to perceived agency. Greater behavioural reactivity to perceived warmth was predicted by high Extraversion, whereas greater behavioural reactivity to perceived agency was predicted by high trait dominance and low agentic interpersonal climate, namely the tendency to view others as submissive.

Individual Differences in Complementarity

The principles of correspondence and reciprocity articulated in interpersonal theory state that interaction partners tend to match each other on levels of agreeableness and oppose each other on levels of agency (e.g. Kiesler, 1983; Sadler, Ethier & Woody, 2011). While the principle of correspondence has been widely supported, there have been mixed findings for reciprocity (Blumberg & Hokanson, 1983; Bluhm, et al., 1990; Roger & Schumacher, 1983; Sadler, Ethier & Woody, 2011). The present study assessed variation among individuals in behavioural reactivity to their perceptions of warmth and agency in others as a possible explanation for previous mixed findings on reciprocity. A second aim was to identify personality predictors of behavioural reactivity to perceived warmth and agency.

Situation-Based Contingencies

While early theorists, such as Lewin (1935), Allport (1937), Rotter (1954; 1981) and Cattel (1965) discussed the interplay of person and situational characteristics in understanding behaviour, the field subsequently turned to questioning their relative importance (Moskowitz & Fournier, 2014). The person-situation debate, ignited by Mischel's (1968) book, revolved around the utility of broad traits, given the low consistency in behaviour from one situation to the next (Roberts, 2009; Swan & Seyle, 2005). Since then, considerable evidence has accrued that traits predict major life outcomes, such as divorce, occupational attainment and mortality (Hampson, Goldberg, Vogt & Dubanoski, 2006; Ozer & Benet-Martinez, 2006; Roberts, Kuncel, Shiner, Caspi & Goldberg, 2007). However, the question still remains of how to account for variability in behaviour from one situation to the next. One approach has been the development of the behavioural signature, a set of *if... then* contingencies, by proponents of social-cognitive theory (Shoda, Mischel & Wright, 1994).

The behavioural signature is an idiographic approach that captures an individual's pattern of behaviour across categorical situations (Shoda, Mischel & Wright, 1994). Studies have demonstrated that stable behavioural signatures can be identified for a variety of behaviours and situations. Shoda and colleagues (1994) identified stable behavioural signatures for children in situations such as being praised by an adult or teased by a peer. Smith et al. (2009) found stable behavioural signatures for coaches' behaviour based on whether their team was winning, losing or tied. These behavioural signatures were related to the children's liking of their coach. Finally, Fournier and colleagues (2008) demonstrated the existence of stable behavioural signatures in the interpersonal behaviour of community adults based on the interpersonal style displayed by the interaction partner, for example agreeable-dominant or quarrelsome-submissive.

The identification of a psychologically active situational cue that varies along with the behaviour in question offers a potential explanation of cross-situational variability in the behaviour (Fleeson, 2007; Furr, 2009; Shoda at al., 1994). A situation-based contingency captures a linear association between a psychologically active variable and a behaviour or personality state (Fleeson, 2007; Minbashian et al., 2010; Smith et al., 2009). Smith et al. (2009) identified contingencies of coaches' behaviour based on the psychologically-active situational feature of game score. Fleeson (2007) identified contingencies for Five Factor states based on situational features such as task orientation for Conscientiousness. Minbashian and colleagues (2010) identified contingencies for managers in the workplace for Conscientiousness, based on the difficulty and the urgency of the task they were engaged in. While causality cannot be established in the absence of experimental manipulation, the identification of a psychologically-active situational feature that fluctuates in conjunction with a behaviour suggests that fluctuations in the situational variable may produce fluctuations in the behaviour (Furr, 2009).

Situation-based contingencies have been found to vary between individuals, such that some individuals adjust their behaviour more than others in response to psychologically active features of the situation, and even make adjustments in different directions (Fleeson, 2007; Minbashian et al., 2010; Smith et al., 2009). Thus, they capture a person-situation interaction (Fleeson, 2007). This variation between individuals suggests that situation-based contingencies may also constitute a trait-like feature of the individual, and even be predictable by other traits (Fleeson, 2007; Furr, 2009; Minbashian et al., 2010). Minbashian and colleagues (2010) found that situation-based contingencies for Conscientiousness were predicted by, although not redundant with, lower trait Conscientiousness and higher need for cognition, and in turn predicted adaptive performance on a cognitive task. An impediment to constructing situation-based contingencies has been the lack of a widely accepted, comprehensive taxonomy of situations (Funder, 2009; Roberts, 2007; Swann & Seyle, 2005; Yang, Read & Miller, 2009), which leads to difficulty in identifying situational cues that may produce fluctuations in behaviour (Fleeson, 2007).

The Interpersonal Circle

The Interpersonal Circle model of interpersonal behaviour (Wiggins, 1991) can be used to describe both interpersonal behaviour and the psychologically active features of interpersonal situations (Fournier et al., 2008; Moskowitz & Zuroff, 2005a; Roberts, 2007; Wiggins, 1991), and posits links between the two (Kiesler, 1983). It can further be used to describe interpersonal traits (Wiggins, Trapnell & Phillips, 1988). As such, it is a convenient framework for the identification of situation-based contingencies. Interpersonal interactions are a central area of human psychological functioning (Strack & Horowitz, 2011), with implications for psychopathology (e.g. Kachin, Newman & Pincus, 2001; Russell, Moskowitz, Zuroff, Sookman

& Paris, 2007), workplace adjustment (Côté, Moskowitz & Zuroff, 2012) and romantic relationships (e.g. Sadikaj, Moskowitz & Zuroff, 2011). Thus, interpersonal contingencies, reflecting how a person adjusts their behaviour to situational cues, may have broad implications for psychological functioning.

Several versions of the Interpersonal Circle or Circumplex have been proposed, which typically describe interpersonal behaviour with two major axes, love and status (Carson, 1969; Kiesler, 1983; Leary, 1957; Wiggins, 1982). The version of the Interpersonal Circle used here consists of two intersecting, orthogonal axes, the communal and the agentic axes. The communal axis defines interpersonal behaviour on a continuum from quarrelsomeness to agreeableness, whereas the agentic axis describes behaviour from dominance to submissiveness. The two axes can be combined to represent interpersonal behaviour. For example, a sulky teenager may act in a quarrelsome-submissive manner. The same axes can be used to describe traits (e.g. Wiggins, 1979), as in the case of someone high on trait dominance or agreeableness.

The Interpersonal Circle can also be used to describe interpersonal situations in several ways (Fournier et al., 2008; Moskowitz & Zuroff, 2005a; Roberts, 2007). One option is to define situations according to the participant's perceptions of their interaction partner's behaviour. Interactions can be classified based on the quadrant of the Interpersonal Circle in which the individual categorizes their interaction partner's behaviour, for example dominant-quarrelsome or submissive-agreeable (Fournier et al., 2008). An alternative is to describe the target individual's perceptions of their interaction partner's behaviour continuously (Moskowitz & Zuroff, 2005a). Interpersonal situations can further be defined based on social roles that differ in agency and communion (Roberts, 2007). For example, marriage is high in communion

whereas acquaintanceship is lower (Moskowitz, 2009). The role of supervisor is higher in agency than the role of supervisee (Roberts, 2007).

Complementarity

The primary way in which interpersonal theory posits links between situations and interpersonal behaviour is through the principles of complementarity (e.g. Kiesler, 1983; Sadler, Ethier & Woody, 2011). The correspondence principle states that interaction partners tend to match each other in their levels of communion (Kiesler, 1983). The reciprocity principle states that interaction partners tend to show opposing levels of agency, such that dominance invites submission and submission invites dominance (Kiesler, 1983). These principles hold in moment-to-moment turn taking in interactions as well as over the interaction as a whole (Sadler, Ethier, Gunn, Duong & Woody, 2009). People like each other more and are more satisfied with interactions in which complementarity occurs (Dryer & Horowitz, 1997; Markey, Lowmaster & Eichler, 2010; Tiedens & Fragale, 2003).

A given behaviour invites a complementary response, but does not evoke it (Horowitz, Wilson, Turan, Zolotsev, Constantino & Henderson, 2006; Kiesler, 1983). An individual is not forced to respond in a complementary manner to their interaction partner and may choose not to (Horowitz et al., 2006). Carson (1969) referred to a response that violated complementarity on both axes as anti-complementarity; however for the sake of clarity in the present study, anti-complementarity on the communal axis will be referred to as anti-correspondence, while anti-complementarity on the agentic axis will be referred to as anti-reciprocity.

Although the principle of correspondence has been widely supported (e.g. Bluhm, Widiger & Miele, 1990; Sadler, Ethier & Woody, 2011), there have been mixed findings for the principle of reciprocity (Blumberg & Hokanson, 1983; Bluhm, et al., 1990; Roger &

Schumacher, 1983). Blumberg and Hokanson (1983) found that dominance elicited dominance and submissiveness elicited submissiveness during interactions between confederates and participants in the lab. Roger and Schumacher (1983) paired participants into three types of dyads in the lab: those in which both participants were high on trait dominance, those in which both were low, and those in which one was high and the other was low. They found reciprocity on agency in the high-low condition, but not in the high-high or the low-low conditions. Participants behaved in accordance with their agentic dispositions instead of in accordance with the reciprocity principle. Finally, Bluhm and colleagues (1990) had participants interact in the lab with a confederate. Results showed that participants matched their communal behaviour to that of the confederates (i.e. the principle of correspondence was supported) but that their agentic behaviour was consistent with their personality dispositions rather than reciprocal to the confederate's agentic behaviour.

Several explanations of the mixed findings on reciprocity have been proposed. One issue with the studies previously mentioned is that complementarity was examined during interactions between previously unacquainted individuals, one of which was often a confederate enacting a specific interpersonal style. Markey and Kurtz (2006) studied complementarity in interactions among college roommates after 2 weeks and 15 weeks of living together. While the roommates did not display complementarity in their behaviour after 2 weeks of knowing each other, they did behave in a complementary manner after 15 weeks. Thus, the lack of acquaintance between the interaction partners is one explanation for the mixed findings on reciprocity in the studies by Blumberg and Hokanson (1983), Roger and Schumacher (1983), and Bluhm and colleagues (1990).

Other explanations to the mixed findings on reciprocity are that complementarity may vary with context, and that it may not be apparent during potentially artificial interactions in the lab. Moskowitz, Ho and Turcotte-Tremblay (2007) used an event-contingent recording (ECR) procedure to examine complementarity in naturalistic settings. Participants reported on their own behaviour and their interaction partner's behaviour during interactions in their daily lives. Results showed that correspondence along the communal axis was found in all settings but was stronger in non-work settings than in work settings. Reciprocity along the agentic axis was found in work settings but not in non-work settings. Moreover, participants reported a greater degree of reciprocity when they were in a high status role compared to a low status role. Thus this study suggests that reciprocity may be found in certain contexts in naturalistic settings.

Behavioural Reactivity

An explanation that has not been adequately explored in connection with the mixed findings on reciprocity is the degree of variation between individuals in complementarity. While Tracey (2005) and Foley (2006) report variation among individuals with respect to complementarity, the extent of this variation has not been fully explored. Some individuals may display behavioural patterns that are consistent with the complementarity principles while others do not, or individuals may vary in the strength of their response. In particular, there is reason to expect differences between individuals with respect to the principle of reciprocity, in light of the mixed findings in the literature. Individuals may differ in how they respond to agency in others. Some people may respond to dominance with submission and submission with dominance in accordance with the reciprocity principle, whereas others may respond to dominance with dominance and submission with submission. Others may not modify their agency much based on the agency they perceive in others, but instead may act in accordance with their personality

disposition to agency regardless of how their interaction partner is behaving, similar to the results reported by Roger and Schumacher (1983) and Bluhm et al. (1990).

Constructing situation-based contingencies for participants' interpersonal behaviour based on their interaction partners' behaviour allowed the examination of individual differences in correspondence and reciprocity. These situation-based contingencies are referred to as behavioural reactivity. Behavioural reactivity is defined as the linear association (i.e. the slope) of an individual's behaviour with their perceptions of others' behaviour over multiple interactions. Unlike traditional behavioural signatures, behavioural reactivity can use continuous measures of situational features, which allows for greater precision in the description of situations. The direction of the response provides information about the individual's overall pattern of responding, for example whether she responds to dominance with dominance or with submissiveness. As such, the sign of an individual's behavioural reactivity provides information about whether the person adheres to the principles of complementarity. The numerical value of the slope provides information about the strength of the relation, in others words, how much the participant adapts their behaviour to their perceptions of their interaction partners' behaviour.

Trait Predictors

Individual differences in situation-based contingencies may be predicted by trait variables. Minbashian and colleagues (2010) found that situation-based contingencies for Conscientiousness based on task urgency and difficulty were predicted by, although not redundant with, trait Conscientiousness and need for cognition. The contingencies in turn predicted adaptive performance on a cognitive task with items of variable difficulty.

Interpersonal behavioural reactivity may similarly be predicted by, although not redundant with, trait levels, such as Five Factor traits or interpersonal traits. In particular, Five

Factor Extraversion and Agreeableness may be related to interpersonal behavioural reactivity, as they are related to intraindividual variability in interpersonal behaviour (Moskowitz & Zuroff, 2005b). Extraverts show higher flux in agreeable and quarrelsome behaviour. Individuals high on Five Factor Agreeableness show lower flux in quarrelsome behaviour. Individuals who show greater variability in their interpersonal behaviour may be more behaviourally reactive to interpersonal cues. Hence, Extraverts may show greater reactivity of agreeable and quarrelsome behaviour to the perception of warmth, while individuals high on Five Factor Agreeableness may show lower reactivity of quarrelsome behaviour to the perception of warmth.

Interpersonal trait levels may also predict behavioural reactivity. Higher mean levels of a behaviour are predictive of variability in that behaviour (Moskowitz & Zuroff, 2004). Individuals with higher mean levels may have more leeway to adapt their behaviour to the cues they perceive from others. Finally, behavioural reactivity to the perception of agency may be impacted by lower agentic interpersonal climate, or the generalized tendency to see others as more submissive, as it is associated with stronger reciprocity (Foley, 2006; Moskowitz, 2009).

Event-contingent recording (ECR)

ECR is a form of intensive repeated measures in naturalistic settings in which data is collected following the occurrence of a specific event (Moskowitz & Sadikaj, 2011). The method has been used to study clinical symptoms of psychopathology, problematic health behaviours, and social interaction (Moskowitz & Sadikaj, 2011). In the version of this procedure used, participants completed a standardized record form after each of their interactions lasting five minutes or longer over the course of 20 days. They reported on their behaviour, their interaction partner's behaviour, and the context of the interaction (work, home, recreation). As

the reports are completed close in time to the interaction, bias associated with reconstructive memory is reduced.

ECR is a useful method for studying behavioural reactivity as it can be used to obtain information on both participants' behaviour and their perceptions of their interaction partners' behaviour over the course of multiple interactions. As a result, the use of this method allowed the examination of within-person changes in behaviour based on perceptions of the interaction partners' behaviour across multiple interactions. Both the direction of the association between a person's behaviour and their perceptions of their interaction partner's behaviour (e.g. whether they respond to dominance with dominance or with submission) and the strength of the association (how much they adapt their behaviour to their perceptions of others' behaviour) was examined. Although behavioural reactivity could theoretically be measured in the lab by exposing participants to several standardized situations in which the interaction partner's behaviour varied in warmth and agency, ECR has the advantage of providing data on a much larger number of interactions, and thus of providing more precise estimates of behavioural reactivity.

A further advantage of ECR compared to lab-based studies of complementarity is that the interactions occur in naturalistic settings and thus do not appear contrived or artificial to the participants. Interactions occur in a variety of settings, such as home and work, and with interaction partners in diverse role relationships and varying levels of acquaintanceship. The interaction partners are representative of the full range of interaction partners the participants encounter in daily life. Consequently, the present study examines behavioural reactivity and complementarity in the strongest sense of their meaning, that is, whether individuals show patterns of behaviour consistent with the complementarity principles over multiple interactions

in their daily lives, in a variety of contexts and role relationships, and with a variety of interaction partners.

Hypotheses

The aim of this study was to examine variation among individuals in complementarity. It was expected that while the average effects for the sample would be consistent with correspondence and reciprocity, there would be significant variation among individuals in behavioural reactivity to both perceived warmth and agency. It was hypothesized that almost all participants would adhere to the principle of correspondence along the communal axis, and that variation among individuals in behavioural reactivity to the perception of warmth would be primarily a matter of the strength of the relationship, not the direction. Conversely, it was expected that participants would vary both in the strength and the direction of their behavioural reactivity to perceived agency, which could shed light on the mixed findings on reciprocity.

It was expected that traits associated with higher intraindividual variability in interpersonal behaviour would also be associated with greater behavioural reactivity. It was hypothesized that Extraversion would be associated with greater reactivity of agreeable and quarrelsome behaviour to the perception of warmth in the direction of correspondence. It was expected that Five Factor Agreeableness would be associated with less reactivity of quarrelsome behaviour to the perception of warmth. It was hypothesized that higher trait agreeableness, quarrelsomeness, dominance and submissiveness would predict greater reactivity of the behaviours corresponding to these traits to perceptions of others' behaviour.

Finally, it was expected that lower agentic interpersonal climate would predict greater behavioural reactivity to perceived agency in the direction of reciprocity, as agentic interpersonal climate has previously been shown to moderate reciprocity. However, it was hypothesized that

behavioural reactivity scores would not be redundant with traits, such that there would remain significant variation among participants in behavioural reactivity after accounting for trait levels.

Method

Participants

Ads were placed in newspapers in Montreal and Toronto inviting adults who worked at least 30 hours a week to participate in a study of social interaction. 130 individuals agreed to participate after an initial phone interview and introductory session. Of these, 9 were eliminated because they did not complete the ECR procedure, and a further 8 were removed because they did not mail their ECR forms in on time, which raised concerns over their adherence to the study procedures.

The final sample consisted of 113 individuals (57 men and 56 women) with usable data. The mean age was 40.88 with a standard deviation of 11.35 years. Seventy-eight percent spoke English as their first language. The educational distribution of the sample was as follows: one participant had not completed high school; 13 (12%) had completed high school or trade school; 35 (31%) had completed some university; 43 (38%) had a bachelor level degree and 21 (19%) had a postgraduate degree.

Data collected from this sample has previously been analyzed in other studies. Sadikaj, Moskowitz and Zuroff (2011) used this sample in a study of how attachment orientation impacts affective reactions to perceptions of others. It was also used in a validity study of a new measure to assess participants' perceptions of others' behaviour (Moskowitz & Zuroff, 2005a) and in a study of personality predictors of intraindividual variability in interpersonal behaviour (Moskowitz & Zuroff, 2005b). A subset of the sample was used in a study of the impact of intraindividual variability in interpersonal behaviour on workplace relationships (Côté,

Moskowitz & Zuroff, 2012). Of greater relevance to the present study, this sample was previously used in a study of the effects of context on complementarity (Moskowitz, Ho & Turcotte-Tremblay, 2007), a dissertation on moderators of complementarity (Foley, 2006), and a two studies of behavioural signatures in the interpersonal domain (Fournier et al., 2008; 2009). However, the present study is distinct from past studies as none of these previous studies examined individual differences in complementarity as captured by behavioural reactivity to perceptions of others; thus, the present study represents a novel contribution.

Procedure

Participants were invited to an introductory session during which the study procedures were explained to them. They completed the NEO Five Factor Inventory at this time as well as a battery of questionnaires which are not pertinent to the present study. Participants were instructed to complete an ECR form after each interpersonal interaction lasting 5 minutes or longer over the course of the next 20 days. To maintain manageable demands on the participants, each participant was provided with a maximum of 10 forms per day, although they were not required to complete all the forms. They were asked to mail their completed forms on the subsequent day; this provided some measure of external verification that they completed their forms at the proper time. On average, participants completed 132 forms, which corresponded to 6.6 per day. Participants were compensated $150 for their time.

Measures

Event-contingent recording (ECR). ECR forms asked participants to report on relevant features of their social interactions, namely their own behaviour and their perception of their interaction partner's behaviour, as well as other aspects of the interaction, such as affect and context of the interaction, that are not pertinent to the present study.

Interpersonal behaviour. The participants' interpersonal behaviour was measured with the Social Behaviour Inventory (SBI; Moskowitz, 1994). Each pole of the Interpersonal Circle is assessed with 12 items. An example of an item tapping into agreeableness is "I smiled and laughed with others". Quarrelsome behaviour was assessed with items such as "I made a sarcastic comment". An example of an item assessing dominant behaviour is "I took the lead in planning/organizing a project or activity", whereas submissive behaviour was assessed with items such as "I gave in". Refer to Moskowitz (1994) for the complete list of items as well as information on the development of the item pool. The reliability, convergent validity and discriminant validity of these items for assessing behaviour associated with the four poles of the Interpersonal Circle has been supported (Brown & Moskowitz, 1997; Moskowitz & Côté, 1995; Moskowitz, Suh, & Desaulniers, 1994) and this evidence is summarized in Moskowitz and Sadikaj (2011).

Each ECR form contained 3 items for each behavioural pole. Participants were asked to endorse items that they displayed during an interaction. There were 4 different forms which were rotated on a daily basis to guard against response sets. The raw score for each pole of the Interpersonal Circle was created for each interaction by summing the number of items endorsed by the participant for that pole (0 to 3). Scores were then ipsatized by subtracting the mean number of items endorsed per pole from the raw score for each pole. This procedure is used to adjust for the participant's overall rate of responding (Horowitz, Rosenberg, Baer, Ureño & Villaseñor, 1988; Moskowitz, 1994).

Perceptions of the interaction partner's behaviour. The Interpersonal Grid (IG; Moskowitz & Zuroff, 2005a) was used to assess participants' perceptions of their interaction partners' behaviour. This 11 x 11 grid asks participants to rate others' behaviour using the two

axes of the Interpersonal Circle. The vertical axis is anchored by the terms "assured-dominant" on the top and "unassured-submissive" on the bottom. The horizontal axis is anchored by the terms "cold-quarrelsome" on the left and "warm-agreeable" on the right. Participants were asked to place an x in the square that best corresponded to their interaction partner's behaviour. Both perception of agency and warmth scores range from 1 to 11, with higher scores indicating greater perceived warmth or agency. The reliability and validity of the IG are supported by convergence of ratings of the same person across observers, convergence of ratings of the same person across events, convergence of ratings by the observer and observed person, and sensitivity to experimental manipulations of portrayed agency and communion (Moskowitz & Zuroff, 2005a).

Interpersonal trait levels. Trait levels of agreeableness, quarrelsomeness, dominance and submissiveness were measured by taking the participant's mean score for these behaviours over the course of the ECR procedure. Mean levels of behaviour obtained with the SBI through ECR converge with traits levels obtained through single-occasion self-report questionnaires such as the Interpersonal Adjectives Scale (Moskowitz, 1994; Moskowitz & Sadikaj, 2011).

Interpersonal climate. Scores for communal and agentic interpersonal climate were obtained by taking the participant's mean score on perceived warmth and perceived agency over the ECR period. Higher communal interpersonal climate refers to perceiving others as warmer on average. High agentic personal climate reflects perceiving others as more dominant on average.

Five Factor traits. The NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992) was administered to measure Five Factor Agreeableness and Extraversion. The NEO-FFI comprises 5 scales of 12 items each designed to measure trait levels on each of the Five Factors.

Note that none of the items on the Agreeableness or Extraversion scales reflect behavioural reactivity or intraindividual variability in behaviour. Inter item reliability for each scale was assessed with Cronbach's alpha. For this sample the following αs were obtained: Agreeableness: 0.77, and Extraversion: 0.79 which indicate good internal consistency.

Results

First, multilevel analyses were conducted to test the hypothesis that while the average effects for the sample would be consistent with correspondence and reciprocity, there would be significant variation among participants in their patterns of responding. Next, behavioural reactivity scores were obtained for each participant using Ordinary Least Squares (OLS) regression. Participants who adhered to or opposed the principles of correspondence and reciprocity were counted. Finally, the association between personality traits and the behavioural reactivity scores were examined using multi-level models. All analyses were performed in SAS 9.3 PROC MIXED.

A multi-level approach was used since events were non-independent and nested within participants, and there were an unequal number of events for each participant. Maximum-likelihood multilevel modeling (subsequently referred to as multilevel modeling), offers several advantages over 2 step multilevel modeling with OLS. Multilevel modeling allows for the separation and estimation of both the within-person and the between-person variance (Raudenbush & Bryk, 2002). It allows estimation and hypothesis testing with regards to both average effects for the sample (fixed effects) and the variance between participants on those effects (random effects). It permits calculations of the reduction in variance at either level following the addition of predictors at that level, which is a measure of the effect size (Nezlek, 2001). Finally, it assesses the relation between level 2 variables and the random slopes

controlling for the relation between the level 2 variables and the intercept (Stage, 2001). Based on these advantages, multi-level modeling was used as the general framework for this study.

When examining individual estimates in a multilevel modeling context, the analyst has the choice between examining the individual OLS estimates or the random slopes from the multilevel model (Singer & Willett, 2003). The random slopes are a weighted average of the participant's OLS slope and the fixed effect for the sample (Singer & Willett, 2003). As such, the random slopes are said to borrow strength from the sample (Singer & Willett, 2003; Raudenbush & Bryk, 2002). *Unconditional shrinkage* occurs through the weighted averaging of the OLS estimates and the fixed effect based on the reliability of the OLS estimate (Singer and Willett, 2003; Raudenbush & Bryk, 2002). *Conditional shrinkage* arises through the adjustment of the slopes towards predicted values based on level 2 variables (Raudenbush & Bryk 2002). Hence, the random slopes in a properly specified model are more precise than the OLS estimates (Singer & Willett, 2003). It is for these reasons that the random slopes are typically used when examining the slopes of particular individual (e.g. Moeyaert, Ferron, Beretvas & Van den Noortgate, 2014).

However, the validity of the random slopes is limited if the level 2 model is misspecified, particularly if there are missing level 2 variables (Singer & Willett, 2003; Raudenbush, 1988; Raudenbush & Bryk, 2002). In cases where the presence of a subgroup is suspected, shrinking all estimates towards the mean is not recommended, as doing so could conceal meaningful differences (Raudenbush, 1988; Rogosa, 1980). The OLS estimates are preferable when the analyst wants unbiased estimates of the associations present in the data (Singer & Willett, 2003).

It was hypothesized that participants would differ in their behavioural reactivity to perceived agency, such that some would display reciprocity, others anti-reciprocity, and that

others would not adjust their dominant or submissive behaviour much based on the agency they perceived in their interaction partners. While the presence of subgroups was suspected, we know of no trait variable that would fully distinguish between them. Thus, it was elected to examine the unbiased OLS estimates instead of the random slopes, as the random slopes would be of reduced validity if our hypotheses were correct.

Assessment of Correspondence and Reciprocity for the Sample

Multilevel analyses were conducted to verify that the average effects for the sample conformed to the principles of complementarity. Only level 1 (within-person) variables were used in these models since the relation between interpersonal behaviour and perceptions of interaction partners' behaviour was of interest. There were no level 2 (between-person) predictors used in these preliminary analyses, as we know of no trait variables that distinguish between subgroups for complementarity.

The independent variables, perception of others' warmth and agency, were centered within participants by subtracting the participant's mean score on that variable from their event-level scores. This manipulation removed any differences between participants in their average perception of others' behaviour. Person-centered perception of warmth and agency scores were used in all analyses involving these variables. From this point on, perception of warmth or agency will refer to the person-centered variables.

The association between agreeable behaviour and perception of warmth for the sample was assessed with a multilevel model with agreeable behaviour as the dependent variable and perception of warmth as the independent variable. Both the intercept and the slope for perceived warmth were set as random. The fixed effect for perception of warmth was positive and significant, $b = 0.03$, $t(102) = 22.41$, $p < 0.001$, indicating that on average, the participants

became more agreeable when they perceived a higher level of warmth from others. The random effect was also significant, $z = 4.33$, $p < 0.001$, indicating that there is significant variability in how individuals adjust their agreeable behaviour in response to their perceptions of warmth. Comparisons with an unconditional model revealed that perception of warmth accounted for 10.5% of the within-person variance in agreeable behaviour. In summary, our hypotheses were supported with respect to agreeable behaviour in that the average relation between agreeable behaviour and the perception of warmth for the sample was consistent with the principle of correspondence, but that there was significant variability in this relation between participants.

The association between quarrelsome behaviour and perception of warmth was assessed with a multilevel model with quarrelsome behaviour as the dependent variable and the perception of warmth as the independent variable. The intercept and the slope for perceived warmth were both set as random. The fixed effect for perception of warmth was negative and significant, $b = -0.02$, $t(107) = -13.07$, $p < 0.001$, indicating that, on average, the participants became less quarrelsome when they perceived more warmth from their interaction partners. The random effect for perceived warmth was also significant, $z = 5.50$, $p < 0.001$, indicating that there was significant variation in how participants modified their quarrelsome behaviour in response to greater perception of warmth. Perception of warmth in others accounted for 8.2% of the within-person variance in quarrelsome behaviour. Essentially, the hypotheses were supported with respect to quarrelsome behaviour in that the average relation between quarrelsome behaviour and the perception of warmth was consistent with the principle of correspondence, but that there was significant variation in this relation between participants.

The association between dominant behaviour and perceived agency was assessed with a multilevel model with dominant behaviour as the dependent variable and perceived agency as the

independent variable. The intercept and the slope for perceived agency were both set as random. The fixed effect was significant and negative, $b = -0.01$, $t(83) = -5.10$, $p < 0.001$, indicating that consistent with reciprocity, on average participants decreased their dominant behaviour when they perceived greater agency in others. The random slope was significant, $z = 4.10$, $p < 0.001$, indicating that there was significant variation in how participants responded to their perceptions of agency in others. Perceived agency accounted for 2.4% of the within-person variance in dominant behaviour. Thus, as hypothesized, the average association between dominant behaviour and perceived agency was consistent with reciprocity. Moreover, there was significant variability between participants in this association.

Finally, the association between submissive behaviour and perceived agency was assessed with a multilevel model with submissive behaviour as the dependent variable and perceived agency as in the independent variable. Both the intercept and the slope for perceived agency were set as random. There was a significant positive fixed effect for perceived agency, $b = 0.004$, $t(88) = 2.26$, $p = 0.03$, indicating that on average, participants became more submissive when they perceived greater agency in others. The random effect for perceived agency was significant, $z = 4.36$, $p < 0.001$, indicating that participants varied in how they adjusted their submissive behaviour to agency they perceived in their interaction partners. Perceived agency accounted for 2.9% of the within-person variance in submissive behaviour. Thus, as hypothesized, the average association between submissive behaviour and perceived agency was consistent with reciprocity. However, there was significant variation between participants in this association.

Construction of Behavioural Reactivity Scores

Next, the individual estimates (behavioural reactivity scores) were examined to assess the degree of variation between participants in correspondence and reciprocity. These scores were obtained by performing a separate OLS regression analysis for each participant. The dependent variable was agreeable, quarrelsome, dominant or submissive behaviour, and the independent variable was perceived warmth or agency. These scores represent each participant's unique behavioural reactivity to their perceptions of others' behaviour.

Reactivity scores of agreeable behaviour to the perception of warmth in others were obtained by predicting agreeable behaviour from the perception of warmth in others in a separate OLS regression analysis for each participant. Scores for reactivity of quarrelsome behaviour to the perception of warmth in others were similarly obtained by predicting quarrelsome behaviour from perceived warmth in a separate OLS regression for each participant. Scores for reactivity of dominant behaviour to the perception of agency in others were obtained by predicting dominant behaviour from perceived agency in a separate OLS regression for each participant. Scores for reactivity of submissive behaviour to perceptions of agency in others were constructed by predicting submissive behaviour from perceived agency in a separate OLS regression for each participant. The sign of the slope indicated whether the participant tended to increase or decrease the behaviour in response to their perceptions of their interaction partners' behaviour, whereas the numerical value of the slope indicated the strength of the relation. Refer to Table 2.1 for the means, standard deviations, and ranges of the behavioural reactivity scores and participants' mean agreeable, quarrelsome, dominant and submissive behaviour over the ECR period.

To verify that the reactivity scores obtained through OLS estimates were consistent with the random slopes from the analogous multilevel model, the estimates from the two procedures

were correlated. For example with respect to agreeable behaviour, one set of estimates was obtained by performing a separate OLS regression for each participant with agreeable behaviour as the dependent variable and the perception of warmth in others as the independent variable. The second set of estimates was the random slopes from a multilevel model with agreeable behaviour as the dependent variable and the perception of warmth as the independent variable. The two sets of slopes correlated at $r(111) = 0.92$, $p < 0.001$. The correlations for the two sets of slopes with respect to the other poles of the Interpersonal Circle were as follows: quarrelsomeness, $r(111) = 0.97$, $p < 0.001$; dominance, $r(111) = 0.89$, $p < 0.001$; and submissiveness, $r(111) = 0.91$, $p < 0.001$. Thus, while the unbiased OLS estimates were preferable for the purposes of this study, the two sets of estimates were highly correlated and should provide consistent results.

Correspondence Along the Communal Axis

Participants were said to follow the principle of correspondence if they had a reactivity score of agreeable behaviour to perception of warmth in others that was larger than zero, meaning that they became more agreeable when they perceived greater warmth. Participants were also considered to follow the principle of correspondence if their reactivity score of quarrelsome behaviour to the perception of warmth in others was smaller than zero, meaning that they became less quarrelsome when they perceived greater warmth.

Reactivity of agreeable behaviour to perceived warmth. The scores ranged from -0.02 to 0.07. A count was made of the participants whose reactivity scores of agreeable behaviour to the perception of warmth in others were larger than zero compared to those whose reactivity scores were smaller than zero. Of the 113 participants, 110 (97%) had a reactivity score of agreeable behaviour to perception of warmth that was larger than 0 (followed the principle of

correspondence). Three participants (3%) had a reactivity score that was smaller than 0 (went against the principle of correspondence).

Next, the statistical significance of the association between agreeable behaviour and the perception of warmth in others was examined for each participant. Of the 113 participants, 93 (82%) had a significant positive correlation between their agreeable behaviour and their perception of warmth in others. Twenty participants (18%) had a correlation between their agreeable behaviour and their perception of warmth in others that did not reach significance. None had a significant negative correlation. Thus, the hypothesis that a large majority of participants would adhere to the principle of correspondence was supported with respect to agreeable behaviour, although the strength of the association differed between participants.

Refer to Figure 2.1 for a graphical representation of the sample's reactivity scores of agreeable behaviour to the perception of warmth in others. It can be seen that a large majority have a positive association between their agreeable behaviour and their perception of warmth in others, although these associations differ in their strength. Note that both the participants' behaviour and their perception of others' behaviour were centered within-person in the graphs for the sake of visual clarity. Although the participants' behaviour was not centered for the actual analyses, the slopes in the graphs are identical to the slopes in the analyses given that subtracting a constant will not affect the slopes.

Reactivity of quarrelsome behaviour to perceived warmth. The behavioural reactivity scores ranged from -0.08 to 0.04. With respect to quarrelsome behaviour, 104 (92%) of the 113 participants had a reactivity score of quarrelsome behaviour to the perception of warmth that was smaller than 0 (followed the principle of correspondence). 9 participants (8%) had a reactivity score that was larger than 0 (went against the principle of correspondence).

Next, the statistical significance of the association between each participant's quarrelsome behaviour and perception of warmth in others was examined. Sixty-nine participants (61%) had a significant negative correlation between their quarrelsome behaviour and their perception of warmth in others. Forty-three participants (38%) had a non-significant correlation between their quarrelsome behaviour and their perception of warmth in others. Finally, 1 participant (1%) had a significant positive correlation between their quarrelsome behaviour and their perception of warmth in others. Hence, the hypothesis that a large majority of participants would adhere to the principle of correspondence along the communal axis was supported with respect to quarrelsome behaviour, although again the strength of the association differed between individuals.

The directions of the reactivity scores (regardless of statistical significance) of agreeable and quarrelsome behaviour to the perception of warmth in others were associated in the following ways: 102 participants (90%) had behavioural reactivity scores in the direction of correspondence with respect to both their agreeable and quarrelsome behaviour. Two participants (2%) had behavioural reactivity scores in the direction of correspondence with respect to their quarrelsome behaviour but not with respect to their agreeable behaviour. Eight participants (7%) had behavioural reactivity scores in the direction of correspondence with respect to agreeable behaviour but not with respect to quarrelsome behaviour. Finally, 1 participant (1%) had behavioural reactivity scores in the direction of anti-correspondence with respect to both their agreeable and to their quarrelsome behaviour. Thus, as hypothesized, a large majority of participants had behavioural reactivity scores in the direction of correspondence with regards to both their agreeable and quarrelsome behaviour, with very few inconsistent with correspondence in both cases. Refer to Table 2.2 for the distribution of behavioural reactivity

scores in the direction of correspondence and anti-correspondence for agreeable and quarrelsome behaviour.

Reciprocity along the Agentic Axis

Participants were said to follow the principle of reciprocity if their reactivity score of dominant behaviour to perceived agency was smaller than zero, meaning that they became less dominant when they perceived greater agency. Participants were likewise considered to follow the principle of reciprocity if their reactivity score of submissive behaviour to perceived agency was larger than zero, indicating that they became more submissive when they perceived greater agency.

Reactivity of dominant behaviour to perceived agency. The behavioural reactivity scores ranged from -0.06 to 0.06. A count was made of the participants whose reactivity scores of dominant behaviour to the perception of agency in others were smaller than 0 (followed the principle of reciprocity) compared to those whose reactivity scores were larger than 0 (went against the principle of reciprocity). Of the 113 participants, 75 (67%) had reactivity scores that were smaller than 0. Thirty-seven participants (33%) had reactivity scores that were larger than 0. One participant, who rated their interaction partners' agency the same in all of their interactions, had a behavioural reactivity score of 0. As this participant rated interaction partners' warmth differently across interactions, this person did not appear to have misunderstood the use of the IG, and so the person's data were included.

Next, the statistical significance of the correlation between each participant's dominant behaviour and the perception of agency in others was examined. Of the 113 participants, 30 (27%) had a significant negative correlation between their dominant behaviour and their perception of agency in others. Seventy-eight participants (69%) had a non-significant

correlation between their dominant behaviour and their perception of agency in others. Finally, 4 participants (4%) had a significant positive correlation between their dominant behaviour and their perception of agency in others. These results indicate that there was considerable variation in how participants adjusted their dominant behaviour to their perceptions of agency in others, spanning from significant associations in the direction of reciprocity to significant associations in the direction of anti-reciprocity, with many participants reacting weakly or not at all.

Refer to Figure 2.2 for an example of a participant with a significant negative correlation between the person's dominant behaviour and the person's perception of agency in others (reciprocity). Figure 2.3 shows an example of a participant with a non-significant correlation between dominant behaviour and the perception of agency in others. Figure 2.4 shows an example of a participant with a significant positive correlation between dominant behaviour and the perception of agency in others. Figure 2.5 shows a graphical representation for the whole sample of reactivity scores of dominant behaviour to the perception of agency in others. Unlike the graph of the reactivity scores of agreeable behaviour to the perception of warmth in others, the slopes on Figure 2.5 vary widely, with some positive, some negative and others flat. Note that both the participant's behaviour and the participant's perception of others' behaviour were centered within-person in the graphs for the sake of visual clarity. Although the participants' behaviour was not centered for the actual analyses, the slopes in the graphs are identical to the slopes in the analyses given that subtracting a constant will not affect the slopes.

Reactivity of Submissive Behaviour to Perceived Agency. The behavioural reactivity scores ranged from -0.07 to 0.06. A count was made of the participants whose reactivity scores of submissive behaviour to the perception of agency in others were larger than 0 (followed the principle of reciprocity) compared to those whose reactivity scores of submissive behaviour to

the perception of agency in others were smaller than 0 (went against the principle of reciprocity). Of the 113 participants, 67 (60%) had reactivity scores that were larger than 0. Forty-five (40%) had reactivity scores that were smaller than 0. Again, one participant who rated their interaction partner's agency the same across all their interactions had a behavioural reactivity score of 0. As this participant rated interaction partners' warmth differently across interactions, this person did not appear to have misunderstood the use of the IG, and so the person's data were included.

Next, the statistical significance of the correlation between each participant's submissive behaviour and their perception of agency in others was examined. Twenty-two participants (19%) had a significant positive correlation between their submissive behaviour and their perception of agency in others. Eighty-five participants (75%) did not have a significant correlation between their submissive behaviour and their perception of agency in others. Finally, 6 participants (5%) showed a significant negative correlation between their submissive behaviour and their perception of agency in others. These results indicate that there was considerable variation in how participants associated their submissive behaviour with their perceptions of agency in others, spanning from significant correlations in the direction of reciprocity to significant correlations in the direction of anti-reciprocity, with many participants reacting weakly or not at all.

The directions of the reactivity scores (regardless of statistical significance) of dominant and submissive behaviour to the perception of agency in others were related in the following ways: of the 113 participants, 57 (50%) had behavioural reactivity scores in the direction of reciprocity with respect to both their dominant and submissive behaviour. Eleven participants (10%) had behavioural reactivity scores in the direction of reciprocity for submissive behaviour, but not for dominant behaviour. Nineteen participants (17%) had behavioural reactivity scores in

the direction of reciprocity with respect to their dominant behaviour but not their submissive behaviour. Finally, 26 participants (23%) had behavioural reactivity scores in the direction anti-reciprocity with respect to both their dominant and submissive behaviour. Thus, while 50% of the participants had behavioural reactivity scores in the direction of reciprocity with respect to both their dominant and submissive behaviour, the other 50% only had behavioural reactivity scores in the direction of reciprocity with respect to at most one of those behaviours. Refer to Table 2.3 for the distribution of behavioural reactivity scores in the direction of reciprocity and anti-reciprocity for dominant and submissive behaviour.

Predictors of Correspondence

It was hypothesized that traits would moderate the association between participants' behaviour and their perceptions of others' behaviour. However, it was expected that the variation among participants' slopes would remain significant even after accounting for trait levels, such that behavioural reactivity to perceived warmth would not be redundant with the traits. Multilevel models were used as certain analyses, such as estimating the proportion of between-person variance accounted for by the level 2 variables and testing the significance of the remaining variation in the level 1 slopes, are not possible in an OLS framework. All level 2 variables were grand-mean centered by subtracting the sample mean from the individual scores. These analyses are similar to those in Foley (2006).

First, agreeable behaviour was predicted by perceived warmth, Five Factor Agreeableness, Extraversion, and communal interpersonal climate, as well as cross-level interactions between perceived warmth and Five Factor Agreeableness, perceived warmth and Extraversion, and perceived warmth and communal interpersonal climate. A random intercept and a random slope for perceived warmth were specified. Cross-level interactions are equivalent

to the level 2 variables predicting the slopes (Raudenbush & Bryk, 2002). Hence, a significant cross-level interaction would indicate that the trait predicts reactivity of agreeable behaviour to perceived warmth.

Results showed a significant interaction between Extraversion and perceived warmth, b = 0.006, $t(90.2) = 2.20$, $p = 0.03$. Estimate statements revealed that individuals who are 1 standard deviation above the mean on Extraversion show a steeper positive correlation between agreeable behaviour and perceived warmth, $b = 0.034$, $t(95.2) = 17.79$, $p < 0.001$, than participants who are 1 standard deviation below the mean on Extraversion, $b = 0.028$, $t(94) = 14.52$, $p < 0.001$. Refer to Figure 2.6 for a graphical representation and to Table 2.4 for detailed results.

Together, the level 2 variables accounted for 11% of the variance in slopes. The random effect for perceived warmth remained significant, $z = 4.09$, $p < 0.001$, indicating that Extraversion did not fully account for the variability among participants in reactivity of agreeable behaviour to perceived warmth. The covariance between the random intercepts and the random slopes was not significant, $z = 0.17$, $p = 0.97$, indicating that mean agreeableness was not associated with reactivity of agreeable behaviour to perceived warmth.

A similar multilevel model with quarrelsome behaviour instead of agreeable behaviour as the dependent variable was performed to assess the impact of traits on reactivity of quarrelsome behaviour to perceived warmth. There was a significant cross-level interaction between perceived warmth and Extraversion, $b = -0.006$, $t(98.4) = -2.01$, $p = 0.047$. Estimate statements revealed that individuals who are 1 standard deviation above the mean on Extraversion show a steeper negative correlation between quarrelsome behaviour and perceived warmth, $b = -0.023$, $t(101) = -10.91$, $p < 0.001$ than individuals who are 1 standard deviation below the mean on

Extraversion, $b = -0.017$, $t(102) = -7.94$, $p < 0.001$. Refer to Figure 2.7 for a graphical representation and to Table 2.5 for detailed results.

Together, the level 2 variables accounted for 11% of the variance in slopes. The random effect for perceived warmth remained significant, $z = 5.28$, $p < 0.001$, indicating that Extraversion did not fully account for the variability among participants in reactivity of quarrelsome behaviour to perceived warmth. The covariance between the random intercepts and the random slopes was not significant, $z = -0.79$, $p = 0.43$, indicating that mean quarrelsomeness was not associated with reactivity of quarrelsome behaviour to perceived warmth.

Predictors of Reciprocity

Multilevel models were used to assess whether traits would predict behavioural reactivity to the perception of agency. It was expected that there would remain significant variation among participants' slopes after accounting for trait levels, such that behavioural reactivity to perceived agency would not be redundant with the traits. With respect to dominant behaviour, the model included dominant behaviour as the dependent variable, and the perception of agency, Five Factor Agreeableness, Extraversion, and agentic interpersonal climate as main effects. Cross-level interactions between perceived agency and Five Factor Agreeableness, perceived agency and Extraversion, and perceived agency and agentic interpersonal climate were included to test the effects of those traits on the reactivity of dominant behaviour to perceived agency (the slopes). A random intercept and a random slope for perceived agency were specified. These analyses are similar to those in Foley (2006).

Results showed a significant cross-level interaction between perceived agency and agentic interpersonal climate, $b = 0.004$, $t(87.4) = 2.87$, $p = 0.005$. Estimate statements revealed that as expected, individuals who perceived others as more submissive on average (1 standard

deviation below the mean on agentic interpersonal climate) showed a stronger negative correlation between their dominant behaviour and their perception of agency in others that reached significance, $b = -0.013$, $t(74.3) = -5.90$, $p < 0.001$. Participants who viewed others as more dominant on average (1 standard deviation above the mean on agentic interpersonal climate) showed a non-significant association between the dominant behaviour and their perception of agency in others, $b = -0.003$, $t(90) = -1.40$, $p = 0.17$. Refer to Figure 2.8 for a graphical representation and to Table 2.6 for detailed results.

Together, the level 2 variables accounted for 19% of the variance in slopes. The random effect for perceived agency remained significant, $z = 3.65$, $p < 0.001$, indicating that agentic interpersonal climate did not fully account for the variability among participants in reactivity of dominant behaviour to perceived agency. There was also a significant interaction between the random intercepts and the random slopes, $z = -1.98$, $p = 0.048$. The correlation between the random intercepts and the random slopes was negative ($r = -0.28$), indicating that more dominant individuals displayed greater reactivity of dominant behavior to perceived warmth in the direction of reciprocity.

A similar multilevel model with submissive behaviour instead of dominant behaviour as the dependent variable was calculated to assess the impact of personality traits on reactivity of submissive behaviour to perceived agency. As expected, results showed a significant cross-level interaction between perceived agency and agentic interpersonal climate, $b = -0.007$, $t(87.6) = -5.42$, $p < 0.001$. Estimate statements revealed that individuals who perceive others as more submissive on average (1 standard deviation below the mean on agentic interpersonal climate) showed a significant positive association between their submissive behaviour and their perception of agency in others, $b = 0.012$, $t(73.8) = 5.89$, $p < 0.001$, consistent with reciprocity.

Participants who habitually perceive others as more dominant (1 standard deviation above the mean on agentic interpersonal climate) showed a significant negative association between their submissive behavior and their perception of agency in others, $b = -0.005$, $t(90.3) = -2.27$, $p = 0.03$, consistent with anti-reciprocity. Thus, while perceiving others as more submissive was associated with reciprocity with respect to submissive behaviour, perceiving others as more dominant was associated with anti-reciprocity with respect to submissive behaviour. Refer to Figure 2.9 for a graphical representation and to Table 2.7 for detailed results.

Together, the level 2 variables accounted for 40% of the variance in slopes. The random effect for perceived agency remained significant, $z = 3.44$, $p < 0.001$, indicating that agentic interpersonal climate did not fully account for the variability among participants in reactivity of submissive behaviour to perceived agency. The interaction between the random intercepts and the random slopes was not significant, $z = -0.83$, $p = 0.41$, indicating that mean submissiveness was not associated with reactivity of submissive behaviour to perceived agency.

Discussion

As expected, the average behaviour patterns for the sample were consistent with both the principle of correspondence and reciprocity. Participants varied mostly in terms of the strength of the association with respect to behavioural reactivity to perceived warmth. Conversely, participants varied both in terms of the strength and the direction of the association with respect to behavioural reactivity to perceived agency, which could explain previous mixed findings on reciprocity. Greater behavioural reactivity to perceived warmth was predicted by higher Extraversion, whereas greater behavioural reactivity to perceived agency was predicted by higher trait dominance and lower agentic interpersonal climate, in other words tendencies to be more dominant and to view others as more submissive.

Our findings are consistent with previous research showing support for the principle of correspondence along the communal axis, given that almost all of the participants in our study showed this pattern of responding (e.g., Bluhm, Widiger & Miele, 1990; Sadler, Ethier & Woody, 2011). Although there was significant variation in how participants responded to perceived warmth, this variance was more a question of the strength of the response and only rarely a question of the direction of the response.

This study suggests a novel explanation for the mixed findings on reciprocity and the smaller amount of variance accounted for by the principle, namely that this pattern is found in some, but not all individuals. Although the average effect for the sample was in the direction predicted by reciprocity, there was more variance among participants with respect to reciprocity than with respect to correspondence. This variation was both a matter of the strength and the direction of the response. Participants' behavioural reactivity to perceived agency covered the spectrum from statistically significant correlations in the direction of reciprocity (about 25% of participants), non-significant correlations (about 70% of participants), and finally significant correlations in the direction of anti-reciprocity (about 5% of participants). Although the principle of reciprocity was an important predictor of agentic behaviour on average, this principle was not universal.

These results provide new insight on the inconsistent findings on reciprocity in the literature. Previous studies that did not support reciprocity studied the sample's average pattern of responding (Bluhm, Widiger & Miele, 1990; Blumberg & Hokanson, 1983; Roger & Schumacher, 1983). Grouping all participants together would have obscured individual differences in reciprocity. Based on the composition of the sample, the average pattern could be shifted in one direction or another. If the sample was weighted towards individuals who became

less agentic when they perceived greater agency, the study would show the anticipated pattern of reciprocity along the agentic axis. Conversely, if the sample was weighted towards individuals who responded to perceptions of agency with greater agency, the study would find an average pattern consistent with anti-reciprocity. Finally, if the sample contained a large a proportion of participants who responded weakly or not at all to their perceptions of agency, findings might show that participants behaved in accordance with their agentic personality traits instead of adjusting their agentic behaviour to their interaction partner's, similar to the findings of Roger and Schumacher (1983) and Bluhm, Widiger and Miele (1990).

Behavioural reactivity to perceptions of warmth was predicted by personality traits. Participants high on Extraversion showed greater reactivity of both agreeable and quarrelsome behaviour to perceived warmth in the direction of correspondence. These results are in line with Moskowitz and Zuroff's (2005b) findings that Extraversion predicts higher flux in agreeableness and quarrelsomeness: this higher flux may in part capture greater behavioural reactivity to situational cues, in this case perceived warmth in others. However, there remained significant variation among participants in behavioural reactivity to perceived warmth after accounting for Extraversion, demonstrating that the two are distinct. A person's behavioural reactivity to perceived warmth score provides information about them that is not captured by their level of Extraversion.

Greater behavioural reactivity to perceived agency in the direction of reciprocity was predicted by higher trait dominance and lower agentic interpersonal climate, a tendency to perceive others as less agentic. On average, participants who are one standard deviation above the mean on agentic interpersonal climate, meaning individuals who habitually view others as more dominant, showed a significant negative correlation between their submissive behaviour

and their perception of agency in others, consistent with anti-reciprocity. Again, there remained significant variation among participants in behavioural reactivity to perceived agency after trait dominance and agentic interpersonal climate were accounted for. This indicates that behavioural reactivity to perceived agency is distinct from trait dominance and agentic interpersonal climate, and that it captures information about the individual that is not contained in those traits.

These results are consistent with Moskowitz and Zuroff's (2005b) finding that individuals higher on dominance show greater flux in dominance. The higher flux displayed by individuals high on trait dominance may in part reflect a greater capability to adapt their dominant behaviour to the demands of the situation, in this case the agentic behaviour of the interaction partner. These results are also consistent with the finding that individuals in high status positions, such as supervisors, show a greater degree of reciprocity in their interactions (Moskowitz et al., 2007). Individuals high on trait dominance or who habitually perceive others as lower on agency may behave similarly to individuals in high status positions and thus respond with greater reciprocity to the agency that they perceive in their interaction partners.

In a more general sense, these results suggest that while the principle of correspondence is applicable almost universally, it is too broad a generalization to consider that all individuals follow the principle of reciprocity, even though reciprocity is the average pattern of responding. Looking at a person's unique reactivity to perceived agency offers more precise information, both in terms of the strength and the direction of that relation.

A person's behavioural reactivity to perceived warmth or agency may have clinical implications. For example, the people with the correlations closest to zero between their dominant behaviour and their perception of agency in others may come across as interpersonally rigid or have difficulty negotiating outcomes with others. Their behaviour may not be perceived

as situationally appropriate. These individuals may experience interpersonal distress (Tracey, 2005). Conversely, excessive behavioural reactivity to perceptions of others' behaviour, particularly when it is in the direction of anti-complementarity, may also lead to negative interpersonal outcomes as these individuals' behaviour may appear unpredictable to others.

In essence, this study demonstrated that it is possible to create situation-based contingencies (i.e., behavioural reactivity scores) for agreeable, quarrelsome, dominant and submissive interpersonal behaviour. The psychologically active feature of the situation, perceived warmth or agency, was shown to fluctuate along with these behaviours. While it is not possible to ascertain causality or directionality without experimental manipulations, these concurrent fluctuations suggest the possibility that fluctuations in perceived warmth or agency may explain fluctuations in interpersonal behaviour (Furr, 2009).

This study further demonstrated a link between personality traits and situation-based contingencies. Minbashian and colleagues (2010) found that contingencies for Conscientiousness based on task demand were predicted by, although distinct from, lower trait Conscientiousness and higher need for cognition. The Conscientiousness contingencies in turn predicted adaptive performance on a cognitive task (Minbashian et al., 2010). In the present study, higher Extraversion predicted greater behavioural reactivity to perceived warmth, whereas higher trait dominance and lower agentic interpersonal climate predicted behavioural reactivity to perceptions of agency. These findings constitute links between traits and patterns of interpersonal behaviour across situations, although the two were not redundant.

This study had several limitations. Interpersonal traits were assessed with mean levels of behaviour instead of with a single-occasion self-report questionnaire, which is a more common method for the assessment of traits. There is evidence that the two methods converge (Fleeson &

Gallagher, 2009), specifically in the case of the SBI (Moskowitz, 1994; Moskowitz & Sadikaj, 2011). Thus, the use of mean levels of behaviour as a proxy for interpersonal traits should not have greatly affected our results.

Second, participants reported on their own behaviour and their interaction partner's behaviour, and so their reports might differ from those that would be obtained from an independent observer. However, in the study of complementarity, the participant's perceptions of the interaction partner's behaviour are arguably more important than the perceptions of a third person, as it is their own perceptions to which they are responding (Moskowitz, Ho & Turcotte-Tremblay, 2007). Moreover, behavioural ratings of the observer and observed person converge (Moskowitz & Zuroff, 2005a).

Third, there is no information about the order of the behaviours in the interaction. The participant may have behaved a certain way which elicited a response from their interaction partner, or the interaction partner's behaviour may have elicited a response from the participant. Given that all of the interactions reported on in the study lasted for over 5 minutes, it is likely that each interactant had several turns to speak, and that the participant responded to their interaction partner's behaviour at least once. Regardless, we can assert that certain behaviours are correlated with certain perceptions of others' behaviour for each participant over a large number of interactions.

Finally, although some of these findings may suggest causality, for example that fluctuations in perceived agency lead participants to adjust their own dominant behaviour, causality cannot be established without experimental manipulation. Rating participants' behaviour in response to standardized levels of warmth and agency in a lab study could clarify these issues.

Future research should aim to identify additional person-level factors that predict behavioural reactivity along the agentic axis, specifically ones that may distinguish between individuals who respond with reciprocity versus anti-reciprocity. One possibility is that individuals who show reciprocity as opposed to anti-reciprocity differ in their interpersonal motives (Horowitz et al., 2006). One motive for responding to dominance with dominance could include maintaining one's independence. Two interaction partners deferring to each other, or responding to submission with submission, could reflect a motive to be polite. Individuals displaying reciprocity may be motivated to form hierarchical differentiations, whereas individuals displaying anti-reciprocity may want to maintain equal footing with their interaction partners. Furthermore, reciprocity and anti-reciprocity may be predictive of different interpersonal outcomes. If individuals do not respond in a complementary manner during their interactions, other people may like them less or experience less satisfaction with their interactions with them (Dryer & Horowitz, 1997).

This study tested complementarity across a multitude of interactions during the participants' daily lives. This incorporated interactions both at home and at work, in different role relationships and with different interaction partners. An important question for future research is to determine whether behavioural reactivity is contextually dependent. This may be especially relevant for individuals who show weaker associations between their behaviour and their perceptions of others' behaviour. Some individuals may only show reciprocity under specific conditions such as at work (Moskowitz et al., 2007), in goal-oriented interactions (Moskowitz et al., 2007) or in unstructured interactions (Kiesler, 1983). Other individuals may respond to perceived agency differently depending on the context. For example, a person may respond to perceived dominance from a supervisor with submissiveness in keeping with their

role to follow their supervisor's directions, but respond to perceived dominance from a supervisee with dominance in an effort to maintain authority.

In conclusion, this study demonstrated the feasibility and utility of constructing situation-based contingencies (behavioural reactivity scores) for interpersonal behaviour. These contingencies offered a novel explanation as to why the principle of reciprocity has not been demonstrated reliably in previous studies, namely that there is substantial variation in how individuals respond to perceived agency. Behavioural reactivity to perceived warmth was predicted by higher Extraversion, whereas behavioural reactivity to perceived agency was predicted by higher trait dominance and lower agentic interpersonal climate. Behavioural reactivity scores were distinct from trait levels. Future research should examine potential contextual effects on behavioural reactivity, and seek further person-level characteristics that distinguish between individuals who display reciprocity versus anti-reciprocity.

Table 2.1

Descriptive Statistics of Key Variables

Variable	Mean	Standard Deviation	Range
Mean Agreeableness	0.15	0.06	-0.01 to 0.35
Mean Quarrelsomeness	-0.18	0.06	-0.38 to -0.06
Mean Dominance	0.10	0.06	-0.05 to 0.26
Mean Submissiveness	-0.07	0.06	-0.21 to 0.05
Reactivity of Agreeableness to Warmth	0.03	0.02	-0.02 to 0.07
Reactivity of Quarrelsomeness to Warmth	-0.02	0.02	-0.08 to 0.04
Reactivity of Dominance to Agency	-0.01	0.02	-0.06 to 0.06
Reactivity of Submissiveness to Agency	0.01	0.02	-0.07 to 0.06

Table 2.2

Distribution of Correspondence and Anti-Correspondence for Agreeable and Quarrelsome Behaviour

		Agreeable Behaviour	
		Correspondence	Anti-Correspondence
Quarrelsome Behaviour	Correspondence	102 participants (90%)	2 participants (2%)
	Anti-Correspondence	8 participants (7%)	1 participant (1%)

Table 2.3

Distribution of Reciprocity and Anti-Reciprocity for Dominant and Submissive Behaviour

		Dominant Behaviour	
		Reciprocity	Anti-Reciprocity
Submissive Behaviour	Reciprocity	57 participants (50%)	11 participants (10%)
	Anti-Reciprocity	19 participants (17%)	26 participants (23%)

Table 2.4

Predictors of Reactivity of Agreeable Behaviour to Perceived Warmth

Independent Variable	*b*	*SE*	*df*	*t*	*p*
Perceived Warmth	0.031	0.001	99.5	23.12	< 0.001
Five Factor Agreeableness	0.029	0.011	112	2.67	0.009
Extraversion	0.038	0.010	108	3.77	< 0.001
Communal Interpersonal Climate	0.003	0.006	111	0.40	0.69
Perceived Warmth x Five Factor Agreeableness	-0.004	0.003	95.9	-1.65	0.10
Perceived Warmth x Extraversion	0.006	0.003	90.2	2.20	0.03
Perceived warmth x Communal Interpersonal Climate	0.001	0.001	110	0.60	0.55

Table 2.5

Predictors of Reactivity of Quarrelsome Behaviour to Perceived Warmth

Independent Variable	*b*	*SE*	*df*	*t*	*p*
Perceived Warmth	-0.020	0.001	105	-13.56	< 0.001
Five Factor Agreeableness	-0.031	0.011	113	-2.79	0.006
Extraversion	-0.018	0.010	110	-1.67	0.09
Communal Interpersonal Climate	0.016	0.007	112	2.33	0.02
Perceived Warmth x Five Factor Agreeableness	0.004	0.003	102	1.29	0.20
Perceived Warmth x Extraversion	-0.006	0.003	98.4	-2.01	0.047
Perceived Warmth x Communal Interpersonal Climate	0.003	0.002	114	1.78	0.08

Table 2.6

Predictors of Reactivity of Dominant Behaviour to Perceived Agency

Independent Variable	*b*	*SE*	*df*	*t*	*p*
Perceived agency	-0.008	0.002	76.4	-5.28	< 0.001
Five Factor Agreeableness	-0.016	0.012	114	-1.37	0.17
Extraversion	0.020	0.011	110	1.75	0.08
Agentic interpersonal climate	0.003	0.005	116	0.58	0.56
Perceived agency x Five Factor Agreeableness	0.002	0.003	73.1	0.49	0.63
Perceived agency x Extraversion	-0.003	0.003	69.4	-0.93	0.36
Perceived agency x agentic interpersonal climate	0.004	0.002	87.4	2.87	0.005

Table 2.7

Predictors of Reactivity of Submissive Behaviour to Perceived Agency

Independent Variable	*b*	*SE*	*df*	*t*	*p*
Perceived Agency	0.003	0.001	76.1	2.46	0.02
Five Factor Agreeableness	0.012	0.010	115	1.21	0.23
Extraversion	-0.038	0.010	110	-3.81	< 0.001
Agentic interpersonal climate	-0.009	0.005	117	-1.94	0.06
Perceived agency x Five Factor Agreeableness	0.000	0.003	72.6	-0.17	0.87
Perceived agency x Extraversion	0.000	0.003	68.7	0.16	0.87
Perceived agency x agentic interpersonal climate	-0.008	0.001	87.6	-5.42	< 0.001

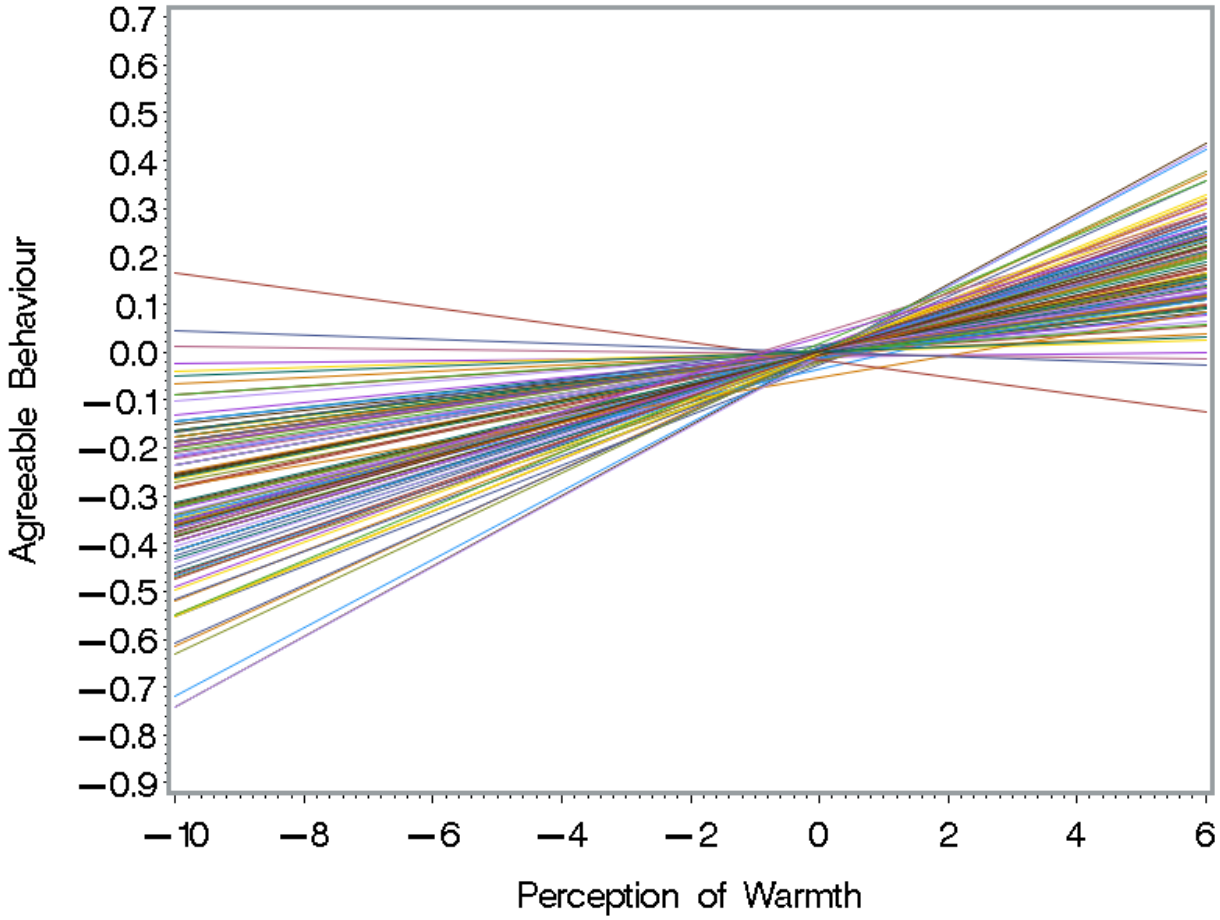

Figure 2.1. Agreeable behaviour as a function of perception of warmth for each participant. One line represents a single participant's reactivity. Note that agreeable behaviour was centered within-person in order to improve visual clarity by removing mean level differences in agreeable behaviour between participants.

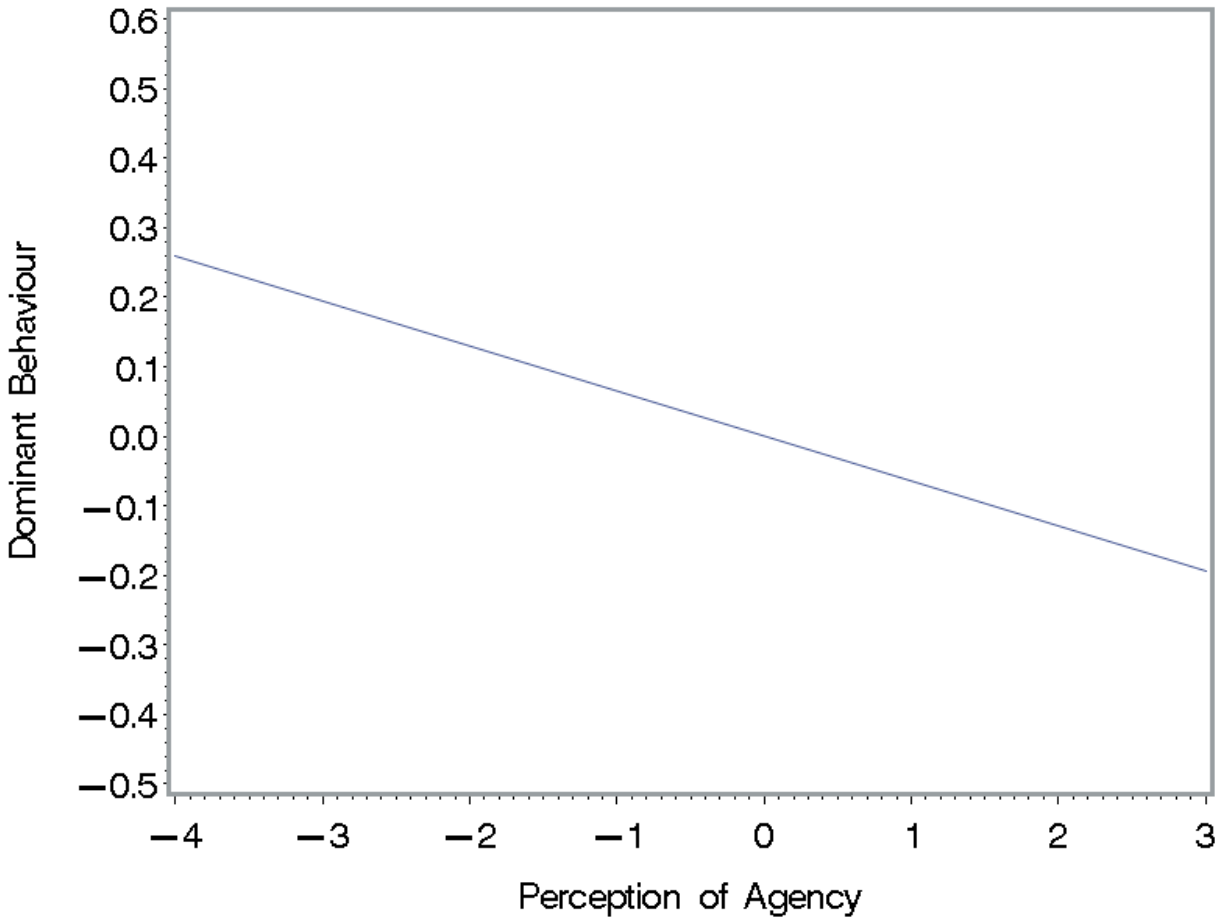

Figure 2.2. Dominant behaviour as a function of perception of agency for participant with ID number 87. This participant adheres to reciprocity, in other words has a significant negative correlation between their dominant behaviour and their perception of agency in others. Note that this participant had 69 observations.

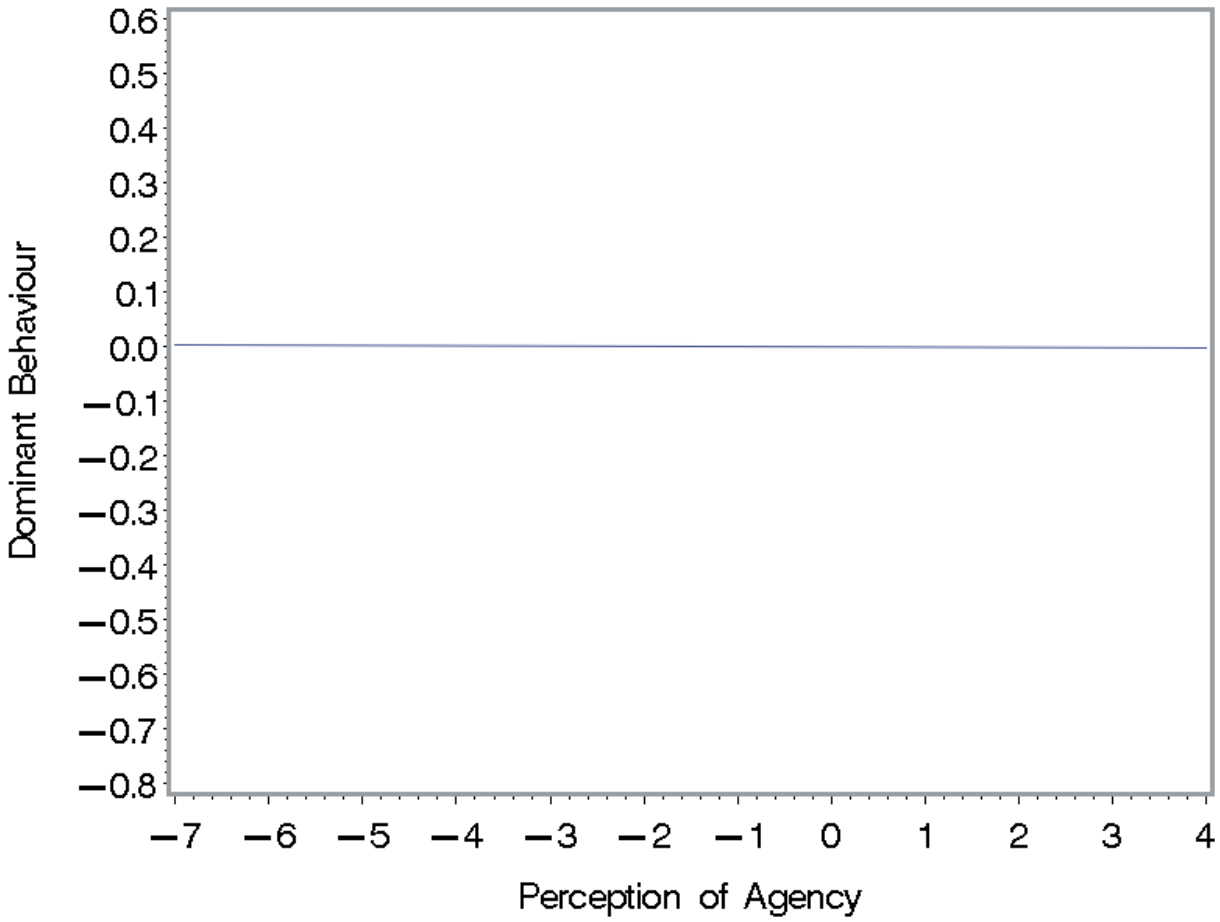

Figure 2.3. Dominant behaviour as a function of perception of agency for participant with ID number 85. This participant has a non-significant correlation between their dominant behaviour and their perception of agency in others. Note that this participant had 201 observations.

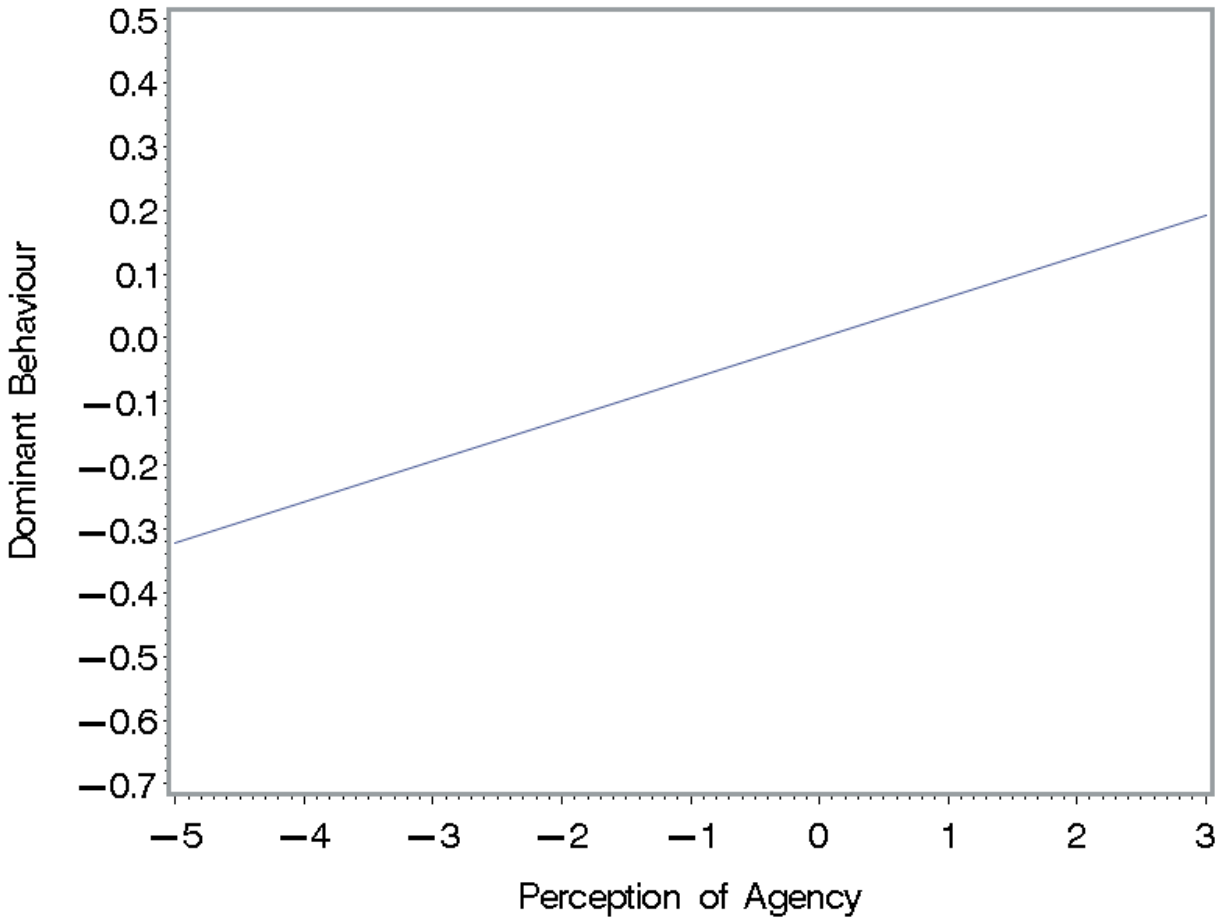

Figure 2.4. Dominant behaviour as a function of perception of agency for participant with ID number 5. This participant demonstrates anti-reciprocity, in other words has a significant positive correlation between their dominant behaviour and their perception of agency in others. Note that this participant had 135 observations.

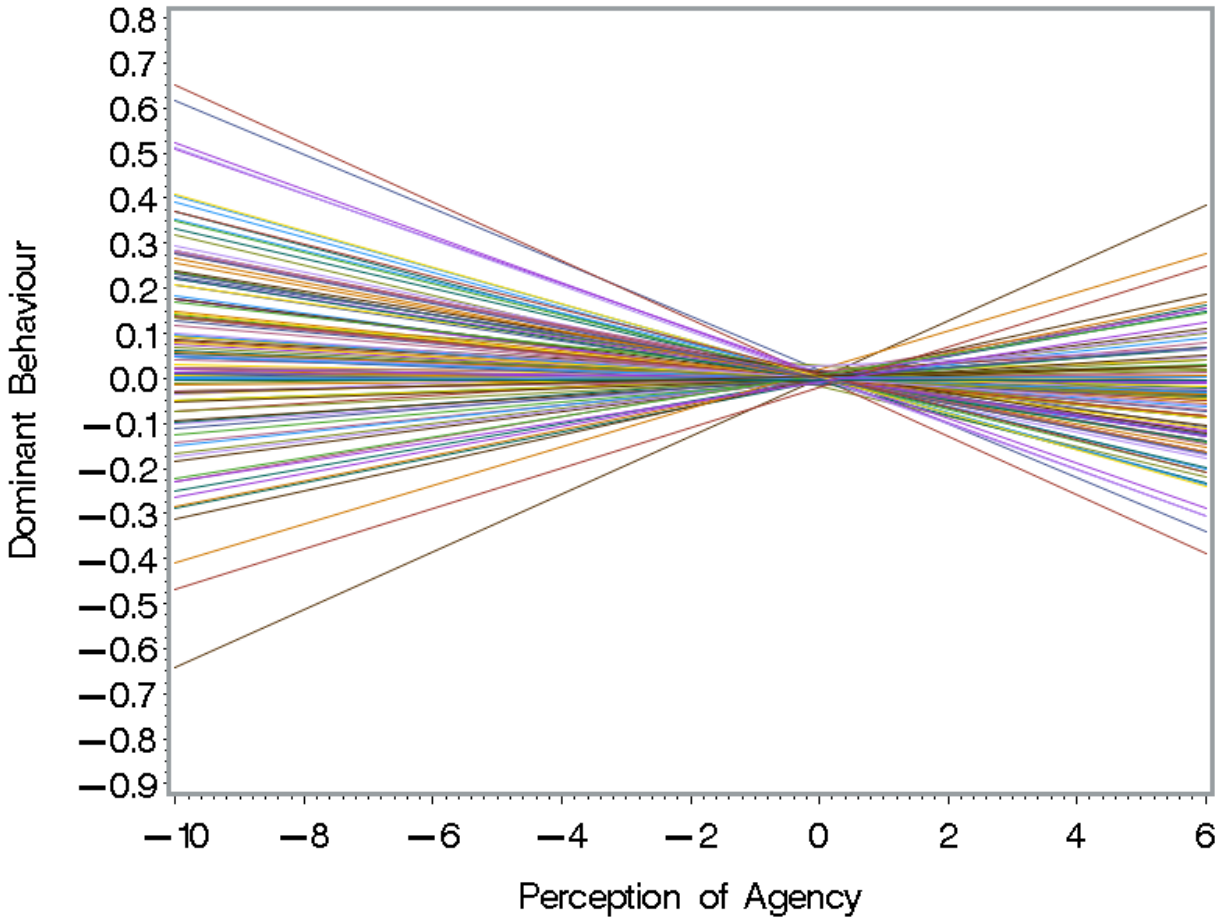

Figure 2.5. Dominant behaviour as a function of perception of agency for each participant. One line represents a single participant's reactivity. Note that dominant behaviour was centered within-person in order to improve visual clarity by removing mean level differences in dominant behaviour between participants.

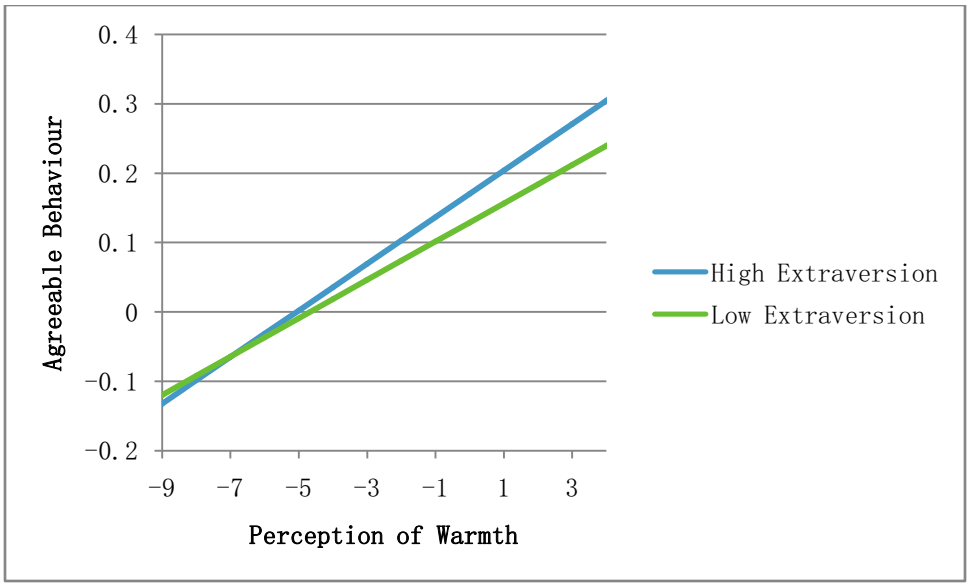

Figure 2.6. Reactivity of agreeable behaviour to perceived warmth as a function of Extraversion. Participants high on Extraversion show greater reactivity of agreeable behaviour to perceived warmth consistent with correspondence.

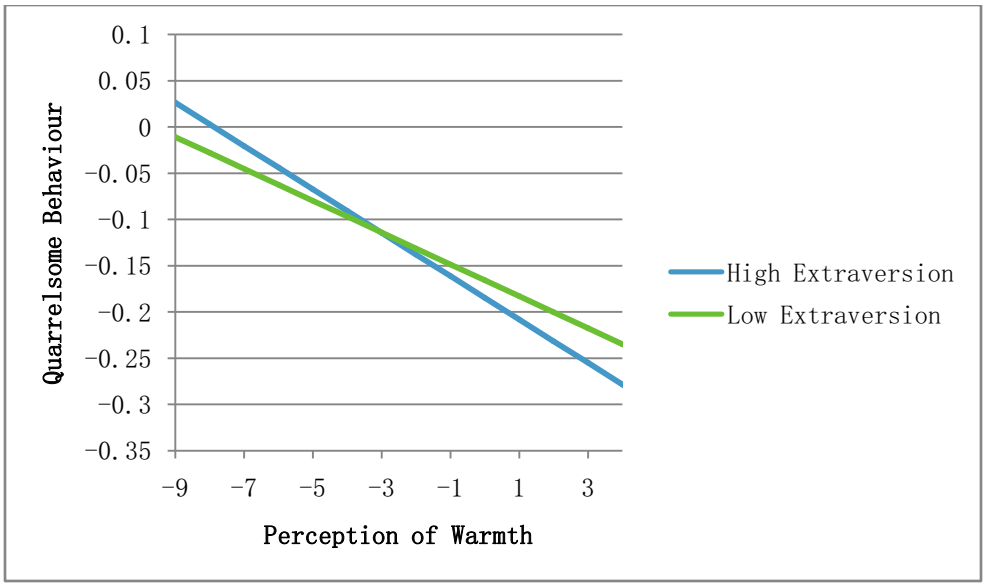

Figure 2.7. Reactivity of quarrelsome behaviour to perceived warmth as a function of Extraversion. Participants high on Extraversion show greater reactivity of quarrelsome behaviour to perceived warmth consistent with correspondence.

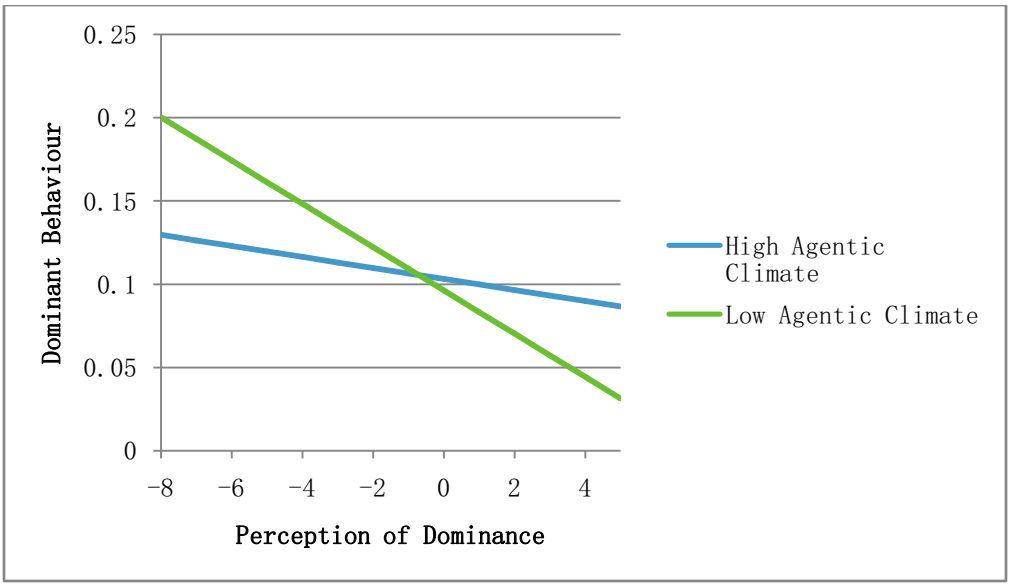

Figure 2.8. Reactivity of dominant behaviour to perceived agency as a function of agentic interpersonal climate. Participants who habitually view others as more submissive (low agentic interpersonal climate) show a significant negative association between their dominant behaviour and perceived agency, consistent with reciprocity. Participants who habitually view others as more dominant (high agentic interpersonal climate) show a non-significant negative association between their dominant behaviour and their perception of agency in others.

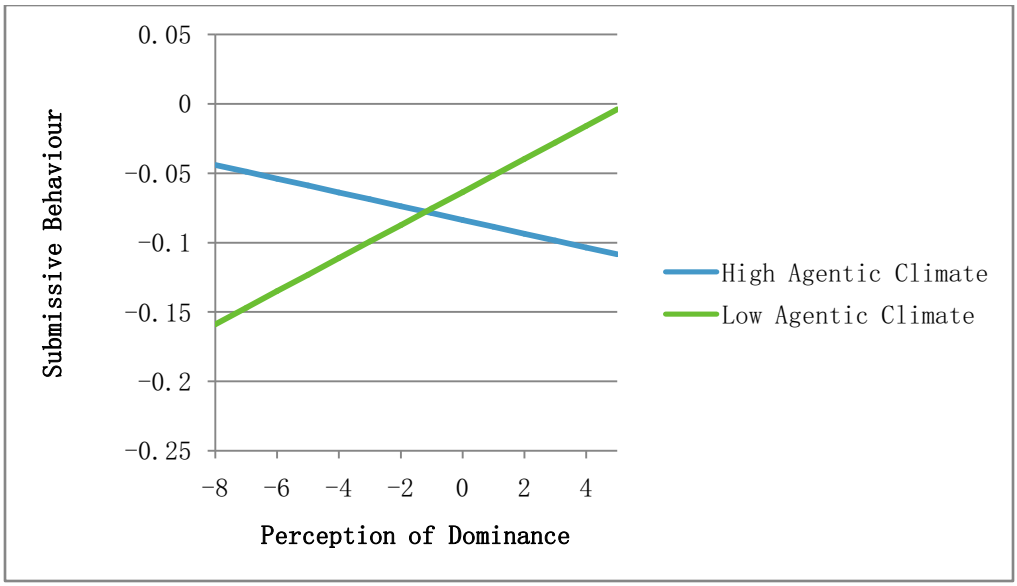

Figure 2.9. Reactivity of submissive behaviour to perceived agency as a function of agentic interpersonal climate. Participants who habitually view others as more submissive (low agentic interpersonal climate) show a significant positive association between their submissive behaviour and perceived agency, consistent with reciprocity. Participants who habitually view others as more dominant (high agentic interpersonal climate) show significant negative association between their submissive behaviour and their perception of agency in others, consistent with anti-reciprocity.

TRANSITION TO STUDY 2

Study 1 demonstrated that behavioural reactivity scores (situation-based contingencies) can be identified for interpersonal behaviour based on participants' perceptions of their interaction partners' behaviour. These contingencies differed significantly among participants. This variation was particularly marked in the case of behavioural reactivity to perceived agency, for which participants differed both in terms of the strength and the direction of the association. Further, behavioural reactivity scores were predicted by trait variables. A further question concerns whether behavioural reactivity to situational cues could partially account for individual differences in the degree of cross-event variability in interpersonal behaviour.

There has been increasing interest in studying intraindividual variability (e.g. Eid & Diener, 1999; Eizenman et al., 1997; Fleeson, 2001; Kernis et al., 1991; Lichtwarck-Aschoff, Kunnen & van Geert, 2009; Moskowitz & Zuroff, 2004; Moskowitz & Zuroff, 2005b; Rocke, Li & Smith, 2009). Intraindividual variability constructs have been shown to be stable, distinct from mean levels, and predictive of important outcomes (e.g. Eid & Diener, 1999; Eizenman et al., 1997; Kuppens et al., 2007). Constructs for which intraindividual variability have been studied include the Five Factor traits (Fleeson, 2001), affect (Eid & Diener, 1999; Lichtwarck-Aschoff, Kunnen & van Geert, 2009; Rocke, Li & Smith, 2009), perceived control (Eizenman et al., 1997), self-esteem (Kernis et al., 1989), and interpersonal behaviour (Moskowitz & Zuroff, 2004; 2005b).

Fleeson (2001; 2007) found that individuals high on intraindividual variability in Five Factor states adjusted those states more in response to features of the situation, such as the task orientation of the situation or the friendliness and status of others present. He concluded that

within-person variability in personality states is related to reactivity to specific features of the situation (Fleeson, 2007).

With respect to interpersonal behaviour, *flux* refers to intraindividual variability on a single pole of the Interpersonal Circle, such as agreeableness (Moskowitz & Zuroff, 2004). It is operationalized as the standard deviation in a person's scores for that behaviour over multiple interactions (Moskowitz & Zuroff, 2004). There is some evidence that intraindividual variability is linked to greater variability in the social environment (Moskowitz & Zuroff, 2004). Flux in dominance is predicted both by a larger number of interaction partners and by the gender balance of interaction partners during the study period (Moskowitz & Zuroff, 2004). Moreover, individuals high on flux perceive higher levels of variability in standardized situations (Erickson, Newman & Pincus, 2009). These results suggest that individuals high on flux both inhabit more variable environments and either overestimate or are more attuned to small fluctuations in others' behaviour.

Thus far, it appears that there has not been a study examining the association between intraindividual variability in interpersonal behaviour and behavioural reactivity to situational cues. Intraindividual variability in interpersonal behaviour and behavioural reactivity may well be connected as people who adjust their behaviour more in response to situational cues should show greater cross-event variability in that behaviour. If such an association were found, it could elucidate nature of intraindividual variability in interpersonal behaviour. It would suggest that flux does not wholly represent erratic or uncontrolled behaviour, but rather that it can be partially explained by behavioural reactivity to situational cues. The aim of study 2 is to test this association.

CHAPTER 3

STUDY 2:

FLUX AND BEHAVIOURAL REACTIVITY TO INTERPERSONAL CUES

Sutton, R. & Moskowitz, D. S.

Abstract

Accounting for inconsistency in a person's actions from one situation to the next is a major issue in understanding behaviour. This study aimed to ascertain whether individuals high on behavioural flux (intraindividual variability on a pole of the Interpersonal Circle) were more behaviourally reactive to situational cues. Working adults completed an event-contingent recording procedure in which they reported on their interpersonal behaviour. Flux in agreeable behaviour and quarrelsome behaviour were predicted by both behavioural reactivity to perceptions of interaction partners' warmth and to the closeness of the social role, whereas flux in dominance was predicted by behavioural reactivity to hierarchical role. Results suggest that the extent of behavioural reactivity to interpersonal cues partially underlies intraindividual variability in interpersonal behaviour.

Flux and Behavioural Reactivity to Situational Cues

A central issue in understanding behaviour is how to account for inconsistency in people's actions from one event to the next. While there is substantial evidence to support the existence of stable dispositions, traits do not fully account for the variability in a person's behaviour. Variable social environments predict intraindividual variability in interpersonal behaviour (Erickson, Newman & Pincus, 2009; Moskowitz & Zuroff, 2004), while behavioural reactivity to situational cues predicts intraindividual variability in Big Five states (Fleeson, 2007). The aim of this study was to combine these two lines of research by investigating the link between intraindividual variability in interpersonal behaviour and behavioural reactivity to interpersonal cues, such as social role and perceptions of other people's behaviour.

There is considerable evidence to support the existence of stable dispositions, or traits. Personality trait levels in elementary school are predictive of trait levels in midlife (Hampson & Goldberg, 2006), and trait levels show moderate to high stability in adulthood (Rantanen, Metsäpelto, Feldt, Pulkkinen & Kokko, 2007). Traits are predictive of a variety of important life outcomes, such as happiness, quality of relationships, criminal involvement, health (Hampson, Goldberg, Vogt & Dubanoski, 2006; Ozer & Benet-Martinez, 2006), mortality, divorce, occupational attainment, socioeconomic status and intelligence (Roberts, Kuncel, Shiner, Caspi & Goldberg, 2007).

Notwithstanding support for the stability of traits, there is evidence of considerable inconsistency in a person's behaviour from one situation to the next. It has been asserted that a person's trait standing only predicts that person's behaviour in a given situation at a maximum of 0.30 (Mischel, 1968; Ross & Nisbett, 1991). Correlation between two instances of states can be even lower; one instance of conscientiousness correlates with another at a maximum of 0.20

(Mischel & Peake, 1982). The amount of within-person variability in behaviour is approximately equal to the amount of between-person variability in behaviour (Fleeson, 2001; Fleeson & Gallagher, 2009; Fournier et al., 2008). Individuals experience almost the complete range of Big Five states during the course of their daily lives (Fleeson, 2001; Fleeson & Gallagher, 2009). For example, the distributions of extraverted behaviour during daily life for extraverts and introverts overlap considerably. Extraverts regularly act introverted, and introverts regularly act extraverted (Fleeson & Gallagher, 2009). The difference between the two is not the frequency with which they report extremely introverted or extraverted behaviour, but rather the frequency with which they enact behaviours in the mid-ranges of extraversion (Fleeson & Gallagher, 2009). Extraverts more frequently report moderately extraverted behaviour, whereas introverts more frequently report moderately introverted behaviour (Fleeson & Gallagher, 2009).

There has been growing interest in studying intraindividual variability in addition to mean levels of constructs (Eid & Diener, 1999; Eizenman, Nesselroade, Featherman & Rowe, 1997; Fleeson, 2001; Foltz, Barber, Weinryb, Morse & Chittams, 1999; Kernis et al., 1991; Kuppens, Van Mechelen, Nezlek, Dossche & Timmermans, 2007; La Guardia, Ryan, Couchman & Deci, 2000; Moskowitz & Zuroff, 2004; Moskowitz & Zuroff, 2005b; Timmermans, Van Mechelen & Kuppens, 2010). Intraindividual variability constructs have been shown to be stable, distinct from mean levels, and predictive of important outcomes. Typically, the standard deviation is used to quantify intraindividual variability. Intraindividual variability in interpersonal behaviour and Big Five states are stable features of the individual (Fleeson, 2001; Moskowitz & Zuroff, 2004; 2005b). Intraindividual variability in affect is both stable (Eid & Diener, 1999) and related to affect valence, self-esteem, agreeableness, neuroticism and

depression (Kuppens et al., 2007), as well as intraindividual variability in interpersonal behaviour (Timmermans et al., 2010). Older adults fluctuate less in positive and negative affect than younger adults (Rocke, Li & Smith, 2009). There is a reversed U-shaped curve between adolescent girls' emotional variability and the number of conflicts they have with their mother (Lichtwarck-Aschoff, Kunnen & van Geert, 2009). Features of relationships, such as attachment, differ within-person from one relationship to the next (Foltz et al., 1999; La Guardia et al., 2000). Within-person variability in perceived control is a stable individual difference in older adults that predicts mortality 5 years later (Eizenman et al., 1997). Variability in self-esteem moderates the association between self-esteem and depression (Kernis et al., 1991). Intraindividual variability in behaviour has even been documented in non-human animals (Stamps, Briffa & Biro, 2012).

Intraindividual variability quantifies inconsistency in a characteristic across occasions, but does not explain it. It remains unclear whether intraindividual variability represents erratic or uncontrolled variability in a person's state from one situation to the next, or if precipitating factors for changes in behaviour can be identified. Research with the Five Factor traits demonstrated that a person's unique reactivity to changes in the social environment predicts their overall level of variability in Five Factor states (Fleeson, 2001; 2007). Intraindividual variability in Extraversion was associated with reactivity of Extraversion to time of day and number of other people present, such that individuals who modified their level of Extraversion more in response to those situational cues showed more variability in their state Extraversion (Fleeson, 2001). Individuals with more within-person variability in Agreeableness were more reactive to the task orientation of the situation. Higher within-person variability in Conscientiousness was associated with greater reactivity to the anonymity and task orientation of the situation and to the

friendliness and status of the other people present. Greater within-person variability in Extraversion and Emotional Stability were likewise associated with greater reactivity to the anonymity and task orientation of the situation, and to the other people's status (Fleeson, 2007). It was concluded that within-person variability in personality states is related to reactivity to specific features of the situation (Fleeson, 2007).

A different set of constructs have been linked to intraindividual variability within the interpersonal literature (Moskowitz & Zuroff, 2004; Erickson, Newman & Pincus, 2009). The Interpersonal Circle model of interpersonal behaviour (Wiggins, 1991) posits two orthogonal axes, the communal axis and the agentic axis. The communal axis describes behaviour on a continuum from agreeableness to quarrelsomeness; the agentic axis describes behaviour on a continuum from dominance to submissiveness. These two axes can be combined to describe interpersonal behaviour. Flux refers to variability on a single dimension of the Interpersonal Circle, such as dominance (Erickson, Newman & Pincus, 2009; Moskowitz & Zuroff; 2004; 2005b). It can be calculated using the person's standard deviation in scores on that dimension measured over a number of occasions (Moskowitz & Zuroff, 2004; 2005b). Flux is a stable characteristic of the individual; some individuals consistently report more variable interpersonal behaviour from one situation to the next, whereas others report more stable interpersonal behaviour (Moskowitz & Zuroff, 2004; 2005b). Highly variable behaviour may be problematic, as higher levels of flux are associated with anxiety (Rappaport, Moskowitz & D'Antono, 2014) and Borderline Personality Disorder (Russell, Moskowitz, Zuroff, Sookman & Paris, 2007).

Moskowitz and Zuroff (2004) examined the possibility that greater flux in interpersonal behaviour could be explained by greater variability in the social environment. They tested whether flux in agreeableness, quarrelsomeness, dominance, or submissiveness were predicted

by variability in status, variability in closeness of interaction partners, number of interaction partners, or gender balance of interaction partners in a person's daily life. Flux in dominance was the only flux variable to be predicted by any of these environmental variability variables, namely the participant's overall number of interaction partners and the gender balance of their interaction partners. The possibility remains that the other flux variables may be predicted by environmental variability variables not tested in this study.

There is also evidence that flux in interpersonal behaviour is predicted by a person's perception of the variability present in their environment (Erickson, Newman & Pincus, 2009). Erickson and colleagues studied the link between flux in interpersonal behaviour and flux in perceptions of others' behaviour. They found that individuals high on flux in affiliative behaviours perceived more variability in warmth in others' behaviour, both when rating others' behaviour and their own expected behaviour with respect to standardized situations in the lab, and when rating their own and others' behaviour in daily life. They further found that individuals high on flux in agency perceived more variability in both others' warmth and agency in daily life. These findings suggest that an individual's perception of variability in others' behaviour may be a key predictor of flux in interpersonal behaviour beyond the objective variability present in the environment.

Previous research has not examined whether individuals higher in intraindividual variability in interpersonal behaviour are more reactive to situational cues. The goal of this study was to apply interpersonal theory to determine whether links between flux and reactivity to specific features of the situation could be identified. The Interpersonal Circle model (Wiggins, 1991) was used to describe both interpersonal behaviour and interpersonal situations. In addition, interpersonal theory predicts specific associations between behaviour and situational

cues (Kiesler, 1983). This is an advantage of the Interpersonal Circle model compared to using the Five Factor traits, as these constructs are primarily posited to be fixed determinants of behaviour, and thus Five Factor theory does not provide predictions about situational determinants of Five Factor states (Fleeson, 2007). Whereas Fleeson (2001; 2007) considered the cues he tested as exploratory, the Interpersonal Circle can provide specific predictions about reactivity to which situational cues would be associated with flux in specific dimensions of interpersonal behaviour.

There are two principles which provide expectations about the associations between behaviour and situational cues. The correspondence principle states that interaction partners tend to match each other's level of communal behaviour. The reciprocity principle states that interaction partners tend to show opposing levels of dominance. These principles have been widely supported (e.g. Kiesler, 1983; Markey & Kurtz, 2006; Sadler, Ethier & Woody, 2011), although with some mixed findings on reciprocity (Blumberg & Hokanson, 1983; Bluhm, et al., 1990; Roger & Schumacher, 1983).

Similarly, the Interpersonal Circle can be used to describe social roles, which also impact interpersonal behaviour (Moskowitz, Suh & Desaulniers, 1994; Roberts, 2007). Social roles can differ in agency; the role of supervisor is high in agency, whereas the role of supervisee is lower in agency (Moskowitz, 2009). People are more agentic when in the role of supervisor and less agentic when in the role of supervisee (Moskowitz, Suh & Desaulniers, 1994). Similarly, social roles can differ along the communal dimension. For example, friendship is more communal than acquaintanceship (Moskowitz, 2009).

The present study attempted to account for individual differences in flux in interpersonal behaviour by evaluating the extent of behavioural reactivity to situational cues. Individuals high

on flux on a specific dimension were expected to be more behaviourally reactive to situational cues relevant to that dimension, regardless of the direction of that change. This approach builds on the work by Moskowitz and Zuroff (2004) and Erickson, Newman and Pincus (2009) that established the link between flux and objective or perceived variability in the social environment by examining how much participants modify their behaviour based on the variability they perceive.

Behavioural reactivity was defined as the amount that a person modifies a specific behaviour depending on a specific situational cue. For example, a person high on reactivity of agreeable behaviour to the perception of warmth in others would be someone who became much more agreeable than usual when they perceived someone as acting warmly, as opposed to someone who only became slightly more agreeable when they perceived someone as being agreeable. To account for participants who may react in the direction opposite to the norm, for example becoming more dominant when they perceive greater agency, absolute behavioural reactivity was defined as the absolute value of a participant's behavioural reactivity score. It was expected that participants high on flux for a given behaviour would show greater absolute reactivity of that behaviour to situational cues, in other words adjust their behaviour to a greater extent, regardless of the direction of that change.

More specifically, this study examined whether individuals high on flux in agreeable and quarrelsome behaviours display greater absolute reactivity of agreeable and quarrelsome behaviour to their perceptions of warmth in their interaction partners and to the closeness of their interaction partner's social role (friend versus acquaintance). Further, this study evaluated whether individuals high on flux in dominant and submissive behaviour demonstrate greater

absolute reactivity of dominant and submissive behaviour to their perceptions of agency in others and to the status of their interaction partner's social role (supervisee, co-worker or supervisor).

Examination of these issues required a method that can measure interpersonal behaviour multiple times for each participant in a variety of contexts, and thus can be used to study individual differences in the links between interpersonal behaviour and situational cues. Event-contingent recording (ECR) can be used to intensively assess key features of participants' interpersonal interactions over periods of several weeks (Moskowitz, Russell, Sadikaj & Sutton, 2009; Moskowitz & Sadikaj, 2011). The Social Behavior Inventory ECR procedure specifically provides measures of dominant, submissive, agreeable, and quarrelsome behaviours (Moskowitz, 1994). In the version of this method used, participants complete standardized forms after interpersonal interactions lasting five minutes or longer over a period of a few weeks. They reported on their social role, their behaviour, and their interaction partner's behaviour. As such, it can be used to ascertain how much a participant modifies his or her behaviour depending on situational features (behavioural reactivity). This method has the advantage of assessing participants' interpersonal behaviour in their natural environment and in a greater number of events than is plausible to assess in the lab. ECR samples behaviour over a broad range of social and work situations, and is sensitive to event-level changes in a person's behaviour. Lastly, as reports are completed close in time to the interaction, distortions and reconstructions associated with retrospective one-time self-report measures are reduced.

In summary, the aim of this study was to determine whether greater absolute behavioural reactivity to situational cues predicts greater flux in interpersonal behaviour. This would indicate that flux does not solely represent erratic or uncontrolled behaviour. Specifically, it was hypothesized that higher flux in agreeable behaviour would be predicted by greater absolute

reactivity of agreeable behaviour to perceived warmth and greater absolute reactivity of agreeable behaviour to the closeness of the social role. Similarly, it was expected that flux in quarrelsome behaviour would be predicted by greater absolute reactivity of quarrelsome behaviour to perceived warmth and greater absolute reactivity of quarrelsome behaviour to the closeness of the social role. It was expected that flux in dominance would be predicted by greater absolute reactivity of dominant behaviour to perceived agency and greater absolute reactivity of dominant behaviour to the status of social role. It was hypothesized that flux in submissiveness would be predicted by greater absolute reactivity of submissive behaviour to perceived agency and greater absolute reactivity of submissive behaviour to the status of the social role. Finally, it was expected that the association between flux in a behaviour and absolute reactivity of the behaviour to situational cues would be specific, such that it would not be predicted by absolute reactivity of another behaviour.

Method

Participants

Participants were recruited from Montreal and Toronto. Ads were placed in newspapers inviting adults who worked at least 30 hours a week to take part in a study of social interaction. There were 130 individuals who agreed to participate in the study after the phone interview and introductory session. Of these, 9 individuals did not complete the ECR procedure. A further 8 were dropped from the sample because they did not mail in their ECR forms on time. The final sample consisted of 113 participants with usable data.

There were 56 women and 57 men. Seventy-eight percent spoke English as their first language. The mean age was 40.88, with a standard deviation of 11.35 years. The distribution of educational attainment was as follows: one participant had not completed high school; 13

(12%) had completed high school or trade school; 35 (31%) had completed some university; 43 (38%) had a bachelor's degree and 21 (19%) had a postgraduate degree.

This sample was previously used in a study of how attachment style influences affective reactivity to perceptions of others (Sadikaj, Moskowitz & Zuroff, 2011), in a validity study of a new method for measuring perceptions of others' interpersonal behaviour (Moskowitz & Zuroff, 2005a), and as a subset of a larger sample used to assess personality predictors of intraindividual variability in interpersonal behaviour (Moskowitz & Zuroff, 2005b). A subset of the present sample was used as part of a study to examine how intraindividual variability in interpersonal behaviour affects social relationships in the workplace (Côté, Moskowitz & Zuroff, 2012). Furthermore, this sample was previously used in a study of the effects of context on complementarity (Moskowitz, Ho & Turcotte-Tremblay, 2007), a dissertation on moderators of complementarity (Foley, 2006), and two studies of behavioural signatures in the interpersonal domain (Fournier et al., 2008; 2009). Note that this is the same sample that was used in Chapter 1. However, the present study is distinct from past studies as none of these previous studies examined the association between behavioural reactivity and flux; thus, the present study represents a novel contribution.

Procedure

Participants first attended an initial meeting where the study was explained to them and their consent was obtained. They also completed a battery of questionnaires at this time which are not pertinent to the present purposes. They were instructed to complete an event-contingent recording form after each social interaction lasting five minutes or longer over the course of 20 days. Forms were returned by mail on the subsequent day. Participants were given 10 forms to

complete a day. On average participants completed 132 forms, about 6 to 7 per day. Participants were compensated $150 for their time.

Measures

Event-contingent recording. Event-contingent recording forms requested participants to report on features of the social interaction such as time, place and people present, as well as information on the participant's interpersonal behaviour and affect, their perception of their interaction partner's behaviour, and their social role.

Interpersonal behaviour. The participant's behaviour was assessed using items developed by Moskowitz (1994). Each pole of the Interpersonal Circle is represented by 12 items. Agreeable behaviour is represented by items such as "I smiled and laughed with others." Items measuring quarrelsome behaviour include "I made a sarcastic comment." An example of an item measuring dominant behaviour is "I took the lead in planning/organizing a project or activity." Submissive behaviour is measured with items such as "I gave in." See Moskowitz (1994) for the complete list of behavioural statements and information concerning the development of the item pool. Evidence demonstrating the reliability, convergent validity, and discriminant validity of these items as behavioural measures of the four Interpersonal Circle dimensions in event-contingent recording studies has been reported by Brown and Moskowitz (1997), Moskowitz and Côté (1995) and Moskowitz, Suh, and Desaulniers (1994), and has been summarized by Moskowitz & Sadikaj (2011).

The participant was asked to endorse items that he or she displayed during an interaction. Four forms, each with 3 items per pole, were rotated on a daily basis so as to guard against response sets. Raw scores were calculated for each behavioural pole for each interaction by adding the number of items endorsed for that scale (0 to 3). Scores were ipsatized by subtracting

the mean number of items endorsed on all four scales for an interaction from each scale's score for that interaction. This adjusted for the participant's overall rate of responding (Horowitz, Rosenberg, Baer, Ureño & Villaseñor, 1988; Moskowitz, 1994).

Perceptions of others' behaviour. The participants' perceptions of their interaction partners' behaviour were assessed with the Interpersonal Grid (IG; Moskowitz & Zuroff, 2005a). This 11 x 11 grid measures perceptions of another person's behaviour using the dimensions of the Interpersonal Circle. The vertical axis is anchored by the terms "assured-dominant" on the top and "unassured-submissive" on the bottom. The horizontal axis is anchored by the terms "cold-quarrelsome" on the left and "warm-agreeable" on the right. Participants rated their interaction partner's behaviour by placing an x in the square of the grid that best corresponded to their perception. Both agentic and communal scores range from 1 to 11, with 1 representing the least perceived agency or communion and 11 the most. The reliability and validity of the IG were supported by convergence of ratings of the same person across observers, convergence of ratings of the same person across events, convergence of ratings of the perceiver and perceived person, and sensitivity to experimental manipulations of portrayed agency and communion (Moskowitz & Zuroff, 2005a).

Social role. Participants were asked to indicate the social role relationship of their interaction partner, from the following categories: "supervisor", "co-worker", "supervisee", "casual acquaintance", "friend" and other categories not relevant to the present research. 91 participants reported on a mean of 8.5 interactions with acquaintances. 111 participants reported on a mean of 21.5 interactions with friends. 33 participants reported on a mean of 10.2 interactions with supervisees. 101 participants reported on a mean of 10.5 interactions with supervisors. 107 participants reported on a mean of 25.7 interactions with coworkers.

Flux in behaviour. Flux in a specific behaviour was defined as a participant's standard deviation in their event-level scores for that behaviour over the 20 days of event contingent recording (Moskowitz & Zuroff, 2004; 2005b).

Construction of behavioural reactivity scores. Behavioural reactivity scores were obtained by using Ordinary Least Squares (OLS) regression to predict a specific type of behaviour (dominant, agreeable) from a specific situational cue (e.g., perception of dominance in the other, closeness of the social role) for each participant. The absolute value of the slope was used to measure the extent of the participant's absolute reactivity of that behaviour to that situational cue. This captures how much the participant changed that behaviour in response to changing levels of the cue, regardless of the direction of that change. The use of the absolute value accounted for participants who reacted in the direction opposite to the norm.

Another option to obtaining the individual estimates would be through performing a multilevel model and outputting the random slopes (Singer & Willett, 2003). However, it was elected to obtain the behavioural reactivity scores to perceptions of others' behaviour through OLS regression for the reasons outlined in Chapter 1, primarily that the presence of subgroups with different slopes was suspected (Raudenbush, 1988; Rogosa, 1980). Hence, the behavioural reactivity scores to the closeness and the status of the social role were also obtained through OLS regression so as to be comparable.

Consequently, the scores for absolute behavioural reactivity to perceptions of others were obtained by predicting a specific behaviour from the perception of agency or warmth in a separate OLS regression for each participant and taking the absolute value of the slope. For example, scores for absolute reactivity of quarrelsome behaviour to the perception of warmth were obtained by predicting quarrelsome behaviour from the perception of warmth in a separate

regression for each participant and taking the absolute value of the slope. The absolute reactivity score represents the degree to which a participant adjusts their quarrelsome behaviour based on perceived warmth in the interaction, regardless of the direction of that adjustment.

The absolute reactivity of communal behaviours to the closeness of the social role scores were obtained by predicting agreeable or quarrelsome behaviour from the closeness of the social role in a separate regression for each participant, and taking the absolute value of the slope. The social roles differing in closeness were friend and acquaintance. Social role was treated as a categorical variable, with acquaintance as the reference category. The absolute reactivity score represents the participant's degree of adjustment in quarrelsome behaviour based on the presence of a friend in the interaction, regardless of the direction of that adjustment.

The absolute reactivity of agentic behaviours to the status of the social role scores were obtained by predicting dominant or submissive behaviour from the status of the social role in a separate regression for each participant, and taking the absolute value of the slopes. The hierarchical roles included the roles of supervisor, coworker or supervisee. Two dummy variables were used: one for the presence of a supervisor compared to a coworker, and the other for the presence of a supervisee compared to a coworker. Thus, there were two slopes for each behaviour: one representing reactivity of the behaviour to interacting with a higher status person (low status of the participant), and the other representing reactivity of the behaviour to interacting with a lower status person (high status of the participant).

For instance, absolute reactivity of dominant behaviour to the status of the social role was obtained by predicting dominant behaviour from the status of the social role for each participant, and taking the absolute value of the slopes. One score represented absolute reactivity of dominant behaviour to interacting with a supervisor compared to a coworker (absolute reactivity

of dominant behaviour to low status), and the other was absolute reactivity of dominant behaviour to interacting with a supervisee compared to a coworker (absolute reactivity of dominant behaviour to high status). Parallel analyses were conducted for reactivity of submissive behaviour to the status of the social role.

Results

Participants showed higher mean dominance and agreeableness than submissiveness and quarrelsomeness; the standard deviation across participants for mean behaviour was similar on all four poles. The means and standard deviations for flux were similar across all four dimensions. These findings are comparable to those reported in other ECR studies of interpersonal behaviour (Moskowitz & Zuroff, 2004). See Table 3.1 for means and standard deviations of behaviour and flux on the four poles of the Interpersonal Circle. Figures 3.1 to 3.4 show the distributions of flux scores. None of the participants had flux scores close to 0, and hence all participants displayed some cross-situational variability in their behaviour. The flux variables were all highly correlated (from $r(111) = 0.45$ for flux in submissiveness and flux in agreeableness, to $r(111) = 0.64$ for flux in submissiveness and flux in quarrelsomeness, all significant at $p < 0.001$). The means and standard deviations in absolute behavioural reactivity scores are displayed in Table 3.2.

The association between flux and absolute behavioural reactivity was examined by predicting flux in a specific behaviour from absolute reactivity of the behaviour to perceptions of others and to social role. The participants' mean of the behaviour over the ECR period, as well as age and sex, were controlled for so as to evaluate the effect of absolute behavioural reactivity over and above these variables (Moskowitz & Zuroff, 2004; 2005b). Next, flux was entered into regression analyses with the absolute reactivity variables of one the other behaviours. This step

was performed to test the specificity of the association between flux and absolute behavioural reactivity of the same behaviour. In the event that an absolute reactivity variable for another behaviour was significant, the significant matched and unmatched absolute reactivity variables were entered into a regression analysis together, controlling for flux in the other behaviour. This step accounted for the strong correlations between all of the flux variables.

Flux in Agreeable Behaviour

It was hypothesized that higher flux in agreeableness would be predicted by greater absolute reactivity of agreeable behaviour to the perception of warmth in others and greater absolute reactivity of agreeable behaviour to the closeness of the social role. Flux in agreeableness was predicted using a multiple regression model which included mean agreeableness, age, sex, absolute reactivity of agreeable behaviour to the perception of warmth, and absolute reactivity of agreeable behaviour to the closeness of the social role.

The overall model was significant $F(5, 104) = 5.04$, $p < 0.001$, with an R^2 of 0.20. See Table 3.3 for detailed results. Consistent with expectations, there were significant main effects for absolute reactivity of agreeable behaviour to the perception of warmth, $b = 0.60$, $t(104) = 3.75$, $p < 0.001$, and for absolute reactivity of agreeable behaviour to the closeness of the social role, $b = 0.11$, $t(104) = 3.32$, $p = 0.001$, indicating that individuals who modified their agreeable behaviour more in response to varying levels of perceived warmth and the closeness of the relationship showed more cross-event variability in their agreeable behaviour. These two variables accounted for 10% and 8% of the variance in flux in agreeableness respectively.

It was considered possible that the relation between flux in agreeableness and reactivity of agreeable behaviour was driven by a spurious correlation. However, inspection of a graph of the residuals versus the predicted values of flux in agreeableness (refer to Figure 3.5) did not

reveal evidence of heteroscedasticity, White test $X^2(20) = 20.04$, $p = 0.46$. In addition, there was no evidence of reduced variance at lower levels of predicted flux in agreeable behaviour, which could indicate a spurious correlation between flux in agreeableness and reactivity of agreeable behaviour due to participants with very low scores on both. Moreover, the residuals were normally distributed, Shapiro-Wilk $W = 0.99$, $p = 0.42$. There were no outliers with Cook's D larger than 1.

Specificity. We hypothesized that there would be a specific association between flux in agreeableness and absolute reactivity of agreeable behaviour, such that flux in agreeableness would not be predicted by absolute reactivity of quarrelsome, dominant or submissive behaviour. To test this specificity, flux in agreeableness was predicted from the quarrelsome, dominant and submissive absolute reactivity variables, controlling for the means of those behaviours. It was expected that these absolute reactivity variables would not predict flux in agreeableness, reflecting a specific relation between flux in agreeableness and absolute reactivity of agreeable behaviour to situational cues. In the event that flux in agreeableness was predicted by absolute reactivity of another behaviour, the absolute reactivity of agreeable behaviour variables and the absolute reactivity of the other behaviour variables were allowed to compete, controlling for flux in the other behaviour.

A multiple regression analysis was performed predicting flux in agreeableness from mean agreeableness, age, sex, mean quarrelsomeness, absolute reactivity of quarrelsome behaviour to the closeness of the social role, and absolute reactivity of quarrelsome behaviour to perceived warmth. The overall model was significant, $F(6, 103) = 5.85$, $p < 0.001$. Contrary to expectations, there was a significant main effect for absolute reactivity quarrelsome behaviour to

the perception of warmth, $b = 0.81$, $t(103) = 5.42$, $p < 0.001$. This effect may reflect the high correlation between flux in agreeableness and quarrelsomeness, $r(111) = 0.59$, $p < 0.001$.

Next, a regression analysis was performed in which the significant agreeableness reactivity variables and the significant quarrelsomeness reactivity variables were allowed to compete, controlling for flux in quarrelsomeness. Flux in agreeableness was entered into a model with mean agreeableness, age, sex, absolute reactivity of agreeable behaviour to perceived warmth, absolute reactivity of agreeable behaviour to the closeness of the social role, mean quarrelsomeness, flux in quarrelsomeness and absolute reactivity of quarrelsome behaviour to perceived warmth as the independent variables. The overall model was significant, $F(8, 101) = 11.44$, $p < 0.001$. There were significant main effects for absolute reactivity of agreeable behaviour to perceived warmth, $b = 0.36$, $t(101) = 2.21$, $p = 0.03$, and for absolute reactivity of agreeable behaviour to the closeness of the social role, $b = 0.07$, $t(101) = 2.46$, $p = 0.02$. The main effect for absolute reactivity of quarrelsome behaviour to perceived warmth was no longer significant, indicating a specific relation between flux in agreeableness and the absolute reactivity of agreeableness variables. Refer to Table 3.4 for detailed results.

Next a multiple regression analysis was performed predicting flux in agreeableness from mean agreeableness, age, sex, mean dominance, absolute reactivity of dominant behaviour to perceived agency, absolute reactivity of dominant behaviour to high status, and absolute reactivity of dominant behaviour to low status. The overall model was significant, $F(7, 25) = 2.56$, $p = 0.04$. Against expectations, there were significant main effects for absolute reactivity of dominant behaviour to low status, $b = 0.11$, $t(25) = 3.09$, $p = 0.005$, and for absolute reactivity of dominant behaviour to high status, $b = 0.07$, $t(25) = 2.39$, $p = 0.02$. These effects

may reflect the high correlation between flux in agreeableness and flux in dominance, $r(111) = 0.63$, $p < 0.001$.

Hence a regression analysis was performed in which the significant agreeableness absolute reactivity variables and the significant dominance absolute reactivity variables were allowed to compete, controlling for flux in dominance. Flux in agreeableness was predicted from mean agreeableness, age, sex, absolute reactivity of agreeable behaviour to perceived warmth, absolute reactivity of agreeable behaviour to the closeness of the social role, mean dominance, flux in dominance, absolute reactivity of dominant behaviour to low status, and absolute reactivity of dominant behaviour to high status. The overall model was significant, $F(9, 23) = 4.05$, $p = 0.003$. Of the absolute reactivity variables, only absolute reactivity of agreeableness to the closeness of the social role remained significant, $b = 0.12$, $t(23) = 2.37$, $p = 0.01$. Thus as expected, there was a specific relation between flux in agreeableness and absolute reactivity of agreeableness. Refer to Table 3.5 for detailed results.

Finally, flux in agreeableness was predicted in multiple regression analyses from mean agreeableness, age, sex, mean submissiveness, absolute reactivity of submissive behaviour to perceived agency, absolute reactivity of submissive behaviour to low status, and absolute reactivity of submissive behaviour to high status. As expected, the model was not significant, $F(7, 25) = 0.97$, $p = 0.47$.

Summary. As anticipated, flux in agreeableness was predicted by absolute reactivity of agreeable behaviour to perceived warmth and to the closeness of the social role. This indicates that participants who adjusted their agreeable behaviour more in response to varying levels of perceived warmth or to the closeness of the social role showed greater cross-situational variability in agreeable behaviour. There was a specific relation between flux in agreeableness

and absolute reactivity of agreeable behaviour, such that flux in agreeableness was not predicted by absolute reactivity of quarrelsome, dominant or submissive behaviour when the respective flux variable and absolute reactivity of agreeable behaviour were in the model.

Flux in Quarrelsome Behaviour

It was hypothesized that flux in quarrelsomeness would be predicted by greater absolute reactivity of quarrelsome behaviour to the perception of warmth in others and greater absolute reactivity of quarrelsome behaviour to the closeness of the social role. Flux in quarrelsome behaviour was entered into a multiple regression model which included mean quarrelsome behaviour, age, sex, absolute reactivity of quarrelsome behaviour to the perception of warmth in others and absolute reactivity of quarrelsome behaviour to the closeness of the social role as the independent variables.

The overall model was significant $F(5, 104) = 8.90$, $p < 0.001$, with an R^2 of 0.30. See Table 3.6 for detailed results. There was a significant main effect for absolute reactivity of quarrelsome behaviour to the perception of warmth in others, $b = 1.18$, $t(104) = 5.39$, $p < 0.001$, indicating that as expected, individuals who modified their quarrelsome behaviour more in response to their perceptions of warmth showed more cross-situational variability in their quarrelsome behaviour. Also as expected, there was a significant main effect for absolute reactivity of quarrelsome behaviour to the closeness of the social role, $b = 0.23$, $t(104) = 3.50$, $p < 0.001$, indicating that participants who modified their quarrelsome behaviour more when interacting with a friend versus an acquaintance showed greater flux in quarrelsomeness. Absolute reactivity of quarrelsome behaviour to the perception of warmth in others and absolute reactivity of quarrelsome behaviour to the closeness of the social role accounted for 19% and 8%, respectively, of the variance in flux in quarrelsomeness.

Graphing the residuals versus the predicted values of flux in quarrelsomeness (refer to Figure 3.6) revealed no evidence of heteroscedasticity, White test $X^2(20) = 21.10$, $p = 0.39$. There was no evidence of reduced variance at lower levels of predicted flux in quarrelsomeness, which could indicate a spurious correlation between flux in quarrelsomeness and reactivity of quarrelsome behaviour driven by participants with very low scores on both. Moreover, the residuals were normally distributed, Shapiro-Wilk $W = 0.99$, $p = 0.84$. There were no outliers with Cook's D larger than 1.

Specificity. It was further hypothesized that there would be a specific association between flux in quarrelsomeness and absolute reactivity of quarrelsome behaviour to social cues. To test this specificity, flux in quarrelsomeness was predicted from the absolute reactivity of agreeableness, dominance and submissiveness variables, controlling for the means of those behaviours. It was expected that these absolute reactivity variables would not predict flux in quarrelsomeness, indicating a specific relation between flux in quarrelsomeness and absolute reactivity of quarrelsome behaviour to situational cues. In the event that flux in quarrelsomeness was predicted by absolute reactivity of another behaviour, the absolute reactivity of quarrelsome behaviour variables and the absolute reactivity of the other behaviour variables were allowed to compete, controlling for flux in the other behaviour.

Flux in quarrelsomeness was predicted from mean quarrelsomeness, age, sex, mean agreeableness, absolute reactivity of agreeable behaviour to the perception of warmth in others, and absolute reactivity of agreeable behaviour to the closeness of the social role. The overall model was significant, $F(6, 103) = 2.55$, $p = 0.02$. There was a significant main effect for absolute reactivity of agreeable behaviour to the closeness of the social role, $b = 0.12$, $t(103) =$

2.28, $p = 0.02$. While this effect was not anticipated, it may reflect the high correlation between flux in agreeableness and flux in quarrelsomeness, $r(111) = 0.59$, $p < 0.001$.

Next, a regression analysis was performed in which the significant quarrelsomeness absolute reactivity variables and the significant agreeableness absolute reactivity variables were allowed to compete, controlling for flux in agreeableness. Flux in quarrelsomeness was predicted from mean quarrelsomeness, age, sex, absolute reactivity of quarrelsomeness to perceived warmth, absolute reactivity of quarrelsomeness to the closeness of the social role, mean agreeableness, flux in agreeableness, and absolute reactivity of agreeable behaviour to the closeness of the social role. The overall model was significant, $F(8, 101) = 12.76$, $p < 0.001$. The main effects for absolute reactivity of quarrelsome behaviour to perceived warmth and to the closeness of the social role remained significant, $b = 0.56$, $t(101) = 2.58$, $p = 0.01$, and $b = 0.21$, $t(101) = 3.71$, $p < 0.001$, respectively. The main effect for reactivity of agreeable behaviour to the closeness of the social role was no longer significant, supporting a specific relation between flux in quarrelsomeness and absolute reactivity of quarrelsome behaviour. Refer to Table 3.7 for detailed results.

Flux in quarrelsomeness was then predicted in multiple regression analyses from mean quarrelsomeness, age, sex and either the absolute reactivity of dominant or submissive behaviour variables, controlling for their respective mean behaviours. As expected, neither of the models was significant, $F(7, 25) = 2.37$, $p = 0.053$ and $F(7, 265) = 0.99$, $p = 0.46$, respectively, supporting a specific relation between flux in quarrelsomeness and absolute reactivity of quarrelsome behaviour to situational cues.

Summary. As anticipated, flux in quarrelsomeness was predicted by absolute reactivity of quarrelsome behaviour to both perceived warmth and to the closeness of the social role. This

indicates that participants who adjusted their quarrelsome behaviour more to the warmth that they perceived in others and to the closeness of the social role showed greater cross-event variability in quarrelsomeness overall. There was a specific association between flux in quarrelsomeness and absolute reactivity of quarrelsome behaviour, such that flux in quarrelsomeness was not predicted by absolute reactivity of agreeable, dominant or submissive behaviour when the respective flux variable and absolute reactivity of quarrelsome behaviour were in the model.

Flux in Dominant Behaviour

It was hypothesized that individuals high on flux in dominance would show greater absolute reactivity of dominant behaviour to the perception of agency in others, greater absolute reactivity of dominant behaviour to low status, and greater absolute reactivity of dominant behaviour to high status. Flux in dominance was predicted through a multiple regression analysis which included mean dominance, age, sex, absolute reactivity of dominant behaviour to the perception of agency in others, absolute reactivity of dominant behaviour to low status, and absolute reactivity of dominant behaviour to high status as the independent variables.

The overall model was significant, $F(6, 26) = 3.53$, $p = 0.01$. See Table 3.8 for detailed results. The R^2 was 0.45. Consistent with expectations, there were significant main effects for absolute reactivity of dominant behaviour to interacting with a supervisor versus a coworker (absolute reactivity of dominant behaviour to low status), $b = 0.12$, $t(26) = 3.76$, $p < 0.001$, and to interacting with a supervisee versus a coworker (absolute reactivity of dominant behaviour to high status), $b = 0.08$, $t(26) = 3.01$, $p = 0.005$. This indicates that participants who modified their dominant behaviour more when they were in a high status or low status role relative to a coequal role reported more variability in their dominance overall. These effects accounted for 21% and

17% of the variance in flux in dominance respectively. Contrary to expectations, there was no significant main effect for absolute reactivity of dominant behaviour to the perception of agency in others.

Graphing the residuals versus the predicted values of flux in dominance (refer to Figure 3.7) revealed no evidence of heteroscedasticity, White test $X^2(27) = 22.46$, $p = 0.71$. There was no evidence of reduced variance at lower levels of predicted flux in dominance, which could indicate a spurious correlation between flux in dominance and reactivity of dominant behaviour driven by participants with very low scores on both. Moreover, the residuals were normally distributed, Shapiro-Wilk $W = 0.97$, $p = 0.47$. There were no outliers with Cook's D larger than 1.

Specificity. Next the specificity of the association between flux in dominance and absolute reactivity of dominant behaviour to social cues was assessed by predicting flux in dominance from the agreeableness, quarrelsomeness and submissiveness absolute reactivity variables, controlling for the respective means in those behaviours. It was expected that these absolute reactivity variables would not predict flux in dominance, indicating a specific relation between flux in dominance and absolute reactivity of dominant behaviour to situational cues. In the event that flux in dominance was predicted by absolute reactivity of another behaviour, the absolute reactivity of dominant behaviour variables and the absolute reactivity of the other behaviour variables were allowed to compete, controlling for flux in the other behaviour.

Flux in dominance was predicted in a multiple regression analysis from mean dominance, age, sex, mean quarrelsomeness, absolute reactivity of quarrelsome behaviour to the perception of warmth in others and absolute reactivity of quarrelsome behaviour to the closeness of the social role. The overall model was significant $F(6, 103) = 3.74$, $p = 0.002$. Contrary to

expectations, there were significant main effects for absolute reactivity of quarrelsome behaviour to perceived warmth, $b = 0.53$, $t(103) = 3.52$, $p < 0.001$, and for absolute reactivity of quarrelsome behaviour to the closeness of the social role, $b = 0.13$, $t(103) = 2.96$, $p = 0.004$. These associations may reflect the high correlation between flux in dominance and flux in quarrelsomeness, $r(111) = 0.57$, $p < 0.001$.

A multiple regression analysis was then performed in which the significant dominance absolute reactivity variables and the significant quarrelsomeness absolute reactivity variables were allowed to compete, controlling for flux in quarrelsomeness. Flux in dominance was predicted from mean dominance, age, sex, absolute reactivity of dominance to low status, absolute reactivity of dominance to high status, mean quarrelsomeness, flux in quarrelsomeness, absolute reactivity of quarrelsomeness to perceived warmth, and absolute reactivity of quarrelsomeness to the closeness of the social role. The overall model was significant $F(9, 23) = 4.89$, $p = 0.001$. Absolute reactivity of dominant behaviour to low status and to high status remained significant, $b = 0.10$, $t(23) = 3.00$, $p = 0.006$ and $b = 0.07$, $t(23) = 3.92$, $p = 0.008$, respectively. Consistent with a specific association between flux in dominance and absolute reactivity of dominant behaviour to situational cues, the absolute reactivity of quarrelsomeness variables were no longer significant. Refer to Table 3.9 for detailed results.

Flux in dominance was then predicted in two analogous models with the agreeableness and submissiveness absolute reactivity variables instead of the dominance absolute reactivity variables. As anticipated, the models were not significant, $F(6, 103) = 1.90$, $p = 0.09$ and $F(7, 25) = 0.90$, $p = 0.52$, respectively, supporting a specific relation between flux in dominance and absolute reactivity of dominant behaviour.

Summary. Consistent with expectations, flux in dominance was predicted by absolute reactivity of dominant behaviour to high status and to low status. This indicates that participants who adjusted their dominant behaviour more in response to the status of their social role showed more cross-event variability in dominant behaviour overall. However, flux in dominance was not predicted by absolute reactivity of dominant behaviour to perceived agency. There was a specific relation between flux in dominance and absolute reactivity of dominant behaviour, such that flux in dominance was not predicted by absolute reactivity of agreeable, quarrelsome or submissive behaviour when the respective flux variable and absolute reactivity of dominance variables were in the model.

Flux in Submissive Behaviour

It was hypothesized that flux in submissiveness would be predicted by greater absolute reactivity of submissive behaviour to the perception of agency in others and greater absolute reactivity of submissive behaviour to low status and to high status. Flux in submissiveness was entered into a multiple regression model including mean submissiveness, age, sex, absolute reactivity of submissive behaviour to the perception of agency in others, absolute reactivity of submissive behaviour to low status, and absolute reactivity of submissive behaviour to high status as the independent variables. The overall model was significant, $F(6, 26) = 2.85$, $p = 0.03$. Contrary to expectations, the absolute reactivity variables were not significant predictors of flux in submissiveness. This indicates that individuals high on flux in submissiveness did not tend to modify their level of submissive behaviour more depending on their perceptions of agency in others or the status of their social role.

Specificity. Next, it was assessed whether flux in submissiveness was predicted by absolute reactivity of agreeable, quarrelsome or dominant behaviour to interpersonal cues,

controlling for the respective means of those behaviours. It was expected that these unmatched absolute reactivity variables would not predict flux in submissiveness. In the event that absolute reactivity of another behaviour predicted flux in submissiveness, flux in the other behaviour was entered into the model. This controlled for the high correlations between flux in submissiveness and flux in other behaviours.

First, flux in submissiveness was entered into a multiple regression analysis with mean submissiveness, age, sex, mean quarrelsomeness, absolute reactivity of quarrelsome behaviour to perceived warmth, and absolute reactivity of quarrelsome behaviour to the closeness of the social role. The overall model was significant, $F(6, 103) = 10.35$, $p < 0.001$. Contrary to expectations, there were significant main effects for absolute reactivity of quarrelsome behaviour to perceived warmth and for absolute reactivity of quarrelsome behaviour to the closeness of the social role, $b = 0.47$, $t(103) = 2.51$, $p = 0.01$ and $b = 0.16$, $t(103) = 2.91$, $p = 0.004$, respectively. These associations may reflect the high correlation between flux in submissiveness and flux in quarrelsomeness, $r(111) = 0.64$, $p < 0.001$. When flux in quarrelsomeness was entered into the model, the overall model remained significant, $F(7, 102) = 32.10$, $p < 0.001$, and there was a significant effect for flux in quarrelsomeness, $b = 0.59$, $t(102) = 10.09$, $p < 0.001$. However, the absolute reactivity of quarrelsomeness variables were no longer significant.

Then, flux in submissiveness was entered into a multiple regression analysis with mean submissiveness, age, sex, mean dominance, absolute reactivity of dominance to perceived agency, absolute reactivity of dominance to low status, and absolute reactivity of dominance to high status as the independent variables. Again, the overall model was significant, $F(7, 25) = 4.92$, $p = 0.001$. There were significant main effects for absolute reactivity of dominance to low status and for absolute reactivity of dominance to high status, $b = 0.13$, $t(25) = 2.97$, $p = 0.006$

and $b = 0.12$, $t(25) = 3.14$, $p = 0.004$, respectively. While these effects were not expected, they may reflect the strong correlation between flux in submissiveness and flux in dominance, $r(111) = 0.54$, $p < 0.001$. When flux in dominance was entered into the model, the overall model remained significant, $F(8, 24) = 5.50$, $p = 0.001$, and there was a significant main effect for flux in dominance, $b = 0.57$, $t(24) = 2.15$, $p = 0.04$. However, the absolute reactivity of dominance variables were no longer significant.

Flux in submissiveness was entered into a multiple regression analysis with mean submissiveness, age, sex, mean agreeableness, absolute reactivity of agreeableness to perceived warmth, and absolute reactivity of agreeableness to the closeness of the social role as the independent variables. Consistent with expectations, there were no significant main effects for the absolute reactivity of agreeableness variables, even though the overall model was significant, $F(6, 103) = 8.63$, $p < 0.001$.

Summary. Contrary to expectations, flux in submissiveness was not predicted by absolute reactivity of submissive behaviour to perceived agency or to the status of the social role. This indicates that participants who adjusted their submissive behaviour more in response to perceived agency in others or the status of the social role did not show more cross-event variability in submissiveness overall. Moreover, flux in submissiveness was not predicted by absolute reactivity of agreeable, quarrelsome or dominant behaviour when flux in the other behaviour was controlled for.

Discussion

The purpose of this study was to determine whether flux in interpersonal behaviour would be predicted by absolute behavioural reactivity to situational cues, in other words, by how much an individual modified their behaviour depending on differing levels of interpersonal cues

from one situation to the next. We also aimed to verify that the link between flux and absolute behavioural reactivity to situational cues was specific instead of general for a variety of behaviours.

The results confirmed many of the expected associations between flux and absolute behavioural reactivity. Flux in agreeableness was predicted by greater absolute reactivity of agreeable behaviour to the perception of warmth in others and greater absolute reactivity of agreeable behaviour to the closeness of the social role. Flux in quarrelsomeness was predicted by greater absolute reactivity of quarrelsome behaviour to the perception of warmth in others and greater absolute reactivity of quarrelsome behaviour to the closeness of the social role. Flux in dominant behaviour was predicted by greater absolute reactivity of dominant behaviour to high status and to low status compared to a coequal role. Our results support a specific link between flux on a given dimension of the interpersonal circle and absolute reactivity of that same behaviour to situational cues.

Our findings suggest that flux in interpersonal behaviour does not solely reflect erratic or uncontrolled behaviour. Instead, individuals high on flux modify their behaviour more in response to features of the situation. For example, individuals high on flux in agreeableness may become much more agreeable when they perceive greater warmth from their interaction partners. This is in contrast to individuals low on flux in agreeableness, who may only become slightly more agreeable when they perceive greater warmth. These results indicate that variability in a person's behaviour from one event to the next can be partially explained by how strongly that person reacts to situational cues posited to be linked to interpersonal behaviour by interpersonal theory.

These results are not an artifact of variability predicting variability. While it makes intuitive sense that individuals who show more cross-event variability in interpersonal behaviour are more behaviourally reactive to interpersonal cues, it was not clear *a priori* which cues participants high on flux would be more reactive to, or even if cross-event variability in interpersonal behaviour reflected erratic fluctuations in behaviour. Not all of the absolute behavioural reactivity variables were significant predictors of flux. For instance, flux in dominance was only predicted by absolute reactivity of dominant behaviour to the status of the social role, not to perceived agency in others. Flux in submissiveness was not predicted by absolute reactivity of submissive behaviour to either perceived agency or the status of the social role.

There was furthermore no evidence of a spurious association between flux and behavioural reactivity driven by participants with near-zero scores on both flux and behavioural reactivity. None of the participants had scores close to zero on any of the flux variables. Moreover, if there were participants with very low levels of both flux and behavioural reactivity who were driving a spurious association between flux and behavioural reactivity, there would be reduced variance in the residuals at lower levels of flux. However, there was no evidence of heteroscedasticity in the multiple regression models predicting flux from the absolute behavioural reactivity variables.

These findings build on Moskowitz and Zuroff's (2004) and Erickson, Newman and Pincus' (2009) findings that individuals high on intraindividual variability in interpersonal behaviour both experience more variable environments and tend to overestimate variability in other people's behaviour, by showing that individuals high on flux also tend to react more strongly to the variability that they perceive. Taken as a whole, this research suggests that

intraindividual variability in behaviour from one event to the next is not wholly unpredictable, but rather reflects, in part, adaptation to volatile environments and individual differences in behavioural reactivity to fluctuating social circumstances.

Our results showed an unanticipated specificity in reactivity to which situational cues predicted flux in dominance versus communal behaviours. Whereas flux in communal behaviours were predicted both by absolute behavioural reactivity to the perception of warmth in others and to the closeness of the social role, flux in dominance was only predicted by absolute behavioural reactivity to hierarchical role. In other words, participants who showed high flux in dominance tended to modify their dominant behaviour more depending on the status of the person they were interacting with, but there was no difference between participants high and low on flux in dominance in how reactive they were to agentic behaviour in others. Thus, the status of social role seemed to override the principle of reciprocity, whereby dominant behaviour tends to draw submissive behaviour, in the prediction of cross-event variability in agentic behaviour. This finding is partly to be expected based on the findings of Chapter 2, which showed that many participants did not adjust their dominant and submissive behaviour to any significant extent based on their perceptions of others' agency. These results confirm the importance of social role in shaping behaviour (Roberts, 2007), specifically the importance of status for dominant behaviour (Moskowitz, Suh & Desaulniers, 1994).

This specificity in the situational cues that predict flux in dominance is in line with Fleeson's (2007) finding that intraindividual variability in Extraversion, which is related to dominance (McCrae & Costa, 1989; Pincus, 2002), was predicted by reactivity to the status of the others present. Moskowitz and Zuroff (2004) found that of flux in agreeableness, quarrelsomeness, dominance and submissiveness, only flux in dominance was predicted by how

variable a person's social environment was. Taken together, these findings indicate that flux in dominance may be impacted by structural features of the environment, especially those reflecting status differentials, and by how sensitive a person is to those situational cues.

Our findings, along with research on other constructs (Fleeson, 2001; 2007; Larsen, Diener & Emmons, 1986), lend support to the idea that intraindividual variability from one event to the next may not be erratic or meaningless. Instead, individual differences in intraindividual variability may in part be predictable from reactivity to situational cues relevant to the construct in question. Fleeson (2001; 2007) found that intraindividual variability in Big Five states was predicted by the reactivity of those states to situational cues. This association was also present in research on affect intensity (Larsen et al., 1986). Affect intensity is an individual difference variable that describes how strongly a person tends to experience affective states, on a continuum from people who experience their emotions mildly and with little variability, to people who experience their emotions intensely and with strong fluctuations (Larsen & Diener, 1987). It is related but not overlapping with intraindividual variability in affect (Larsen & Diener, 1987). High affect intensity participants report stronger affective reactions both to events in their own lives and to standardized descriptions of life events presented to them in the lab (Larsen et al., 1986). Thus, greater reactivity to situational cues may more broadly underlie intraindividual variability across events. Future research should aim to extend this association to other constructs for which meaningful intraindividual variability constructs have been established, although situational cues relevant to the construct will first have to be identified.

One limitation to our study was that the data were self-report, so participants may have been biased in their reports of their own and others' behaviour. However, perceptions tend to converge across observers, and across the observer and the observed person, which supports the

validity of the reports (Moskowitz & Zuroff, 2005a). Moreover, given that we examined the change in each participant's behaviour depending on their rating of situational cues over multiple interactions with multiple partners, any general tendency a participant had to overestimate or underestimate their own or their interaction partner's behaviour would not affect the results. In this sense participants acted as their own controls.

Another limitation was that our method could not determine the temporal order of perception of the other person's behaviour and the participant's own behaviour. A participant could perceive their interaction partner as acting agreeably and then act agreeably in response, or could act agreeably and subsequently perceive their interaction partner as being agreeable. Regardless, we can conclude that participants who have a stronger association between their own behaviour and their perceptions of others' behaviour display higher flux in agreeable and quarrelsome behaviour.

Finally, although situation-based contingencies suggest causality, for example that fluctuations in perceived warmth lead participants to adjust their own agreeable behaviour or that the status of the social role elicits adjustments in dominant behaviour, causality cannot be established without experimental manipulation. Rating participants' behaviour in response to standardized levels of situational cues in a lab study could clarify these issues.

Future experimental research could examine causality by exposing individuals with known flux in agreeableness and quarrelsomeness scores to standardized levels of communal behaviour from others in the lab and rating how much their agreeable and quarrelsome behaviour changed from one condition to the next. Participants with known flux in dominance scores could be assigned to different hierarchical roles and the change in their dominant behaviour could be measured. The relation between the behavioural reactivity scores measured in the lab and the

participants' ECR flux scores could then be examined. While a lab study does not offer the same ecological validity as ECR or permit assessment of as many or as diverse interactions, such a study could offer further evidence that our findings were not an artifact of self-report biases by our participants in describing their own or others' behaviour.

Furthermore, future research should aim to extend the association between flux in interpersonal behaviour and reactivity to situational cues not studied here. Behavioural reactivity to perceptions of others' behaviour and social role accounted for 20% (agreeableness) to 45% (dominance) of the variance in flux. The question remains of whether the remaining variance in flux could be accounted for by behavioural reactivity to other factors, such as affect or context of the interaction, or whether some portion of flux reflects erratic fluctuations in behaviour. This issue is particularly pertinent for flux in submissiveness for which no associations with absolute behavioural reactivity were identified.

In conclusion, this study demonstrated that flux in interpersonal behaviour does not solely reflect erratic or uncontrolled behaviour, but rather is partially predicted by absolute behavioural reactivity to interpersonal cues. There is specificity in reactivity to the cues that predict flux on each dimension. Whereas flux in communal behaviours are predicted by absolute reactivity of those behaviours to both the perception of warmth in others and the closeness of the social role, flux in dominance is predicted by only absolute reactivity of dominance to the status of the role. Future research should aim to explain the remaining variance in flux, whether through absolute behavioural reactivity to factors not included in this study, or as erratic fluctuations in behaviour from one event to the next.

Table 3.1

Means and Standard Deviations of Participants' Mean Behaviour and Flux

Variable	Mean	Standard Deviation
Mean Agreeableness	0.15	0.06
Mean Quarrelsomeness	-0.18	0.06
Mean Dominance	0.10	0.06
Mean Submissiveness	-0.07	0.06
Flux Agreeableness	0.22	0.03
Flux Quarrelsomeness	0.18	0.04
Flux Dominance	0.22	0.03
Flux Submissiveness	0.21	0.04

Table 3.2

Means and Standard Deviations of Absolute Reactivity Variables

Variable	Mean	Standard Deviation
Absolute reactivity of agreeableness to warmth	0.03	0.02
Absolute reactivity of agreeableness to role	0.08	0.07
Absolute reactivity of quarrelsomeness to warmth	0.02	0.02
Absolute reactivity of quarrelsomeness to role	0.06	0.05
Absolute reactivity of dominance to agency	0.02	0.01
Absolute reactivity of dominance to low status	0.09	0.08
Absolute reactivity of dominance to high status	0.15	0.14
Absolute reactivity of submissiveness to agency	0.02	0.01
Absolute reactivity of submissiveness to low status	0.12	0.11
Absolute reactivity of submissiveness to high status	0.15	0.13

Table 3.3

Flux in Agreeableness Predicted by Mean Agreeableness, Age, Sex, Absolute Reactivity of Agreeable Behaviour to Perceived Warmth, and Absolute Reactivity of Agreeable Behaviour to the Closeness of the Social Role

Independent Variable	*b*	SE	df	*t*	*p*	ω^2
Mean agreeableness	0.074	0.038	1	1.93	0.06	0.02
Age	0.000	0.000	1	0.06	0.95	-0.01
Sex	-0.001	0.005	1	-0.30	0.76	-0.01
Reactivity of agreeableness to warmth	0.590	0.157	1	3.75	< 0.001	0.10
Reactivity of agreeableness to role	0.111	0.033	1	3.32	0.001	0.08

Note. *b* = Unstandardized regression coefficients. ω^2 = Semi-partial effect size. "Reactivity" refers to absolute reactivity.

Table 3.4

Specificity of the Association between Flux in Agreeableness and Absolute Reactivity of Agreeable Behaviour versus Absolute Reactivity of Quarrelsome Behaviour

Independent Variable	*b*	SE	df	*t*	*p*
Mean agreeableness	0.019	0.043	1	0.43	0.66
Age	0.000	0.000	1	0.86	0.39
Sex	0.000	0.004	1	0.08	0.93
Reactivity of agreeableness to warmth	0.363	0.164	1	2.21	0.03
Reactivity of agreeableness to role	0.069	0.028	1	2.46	0.02
Mean quarrelsomeness	-0.026	0.046	1	-0.58	0.57
Flux in quarrelsomeness	0.320	0.057	1	5.59	< 0.001
Reactivity of quarrelsomeness to warmth	0.249	0.176	1	1.41	0.16

Note. *b* = Unstandardized regression coefficients. "Reactivity" refers to absolute reactivity.

Table 3.5

Specificity of the Association between Flux in Agreeableness and Absolute Reactivity of Agreeable Behaviour versus Absolute Reactivity of Dominant Behaviour

Independent Variable	*b*	SE	df	*t*	*p*
Mean agreeableness	-0.046	0.055	1	-0.83	0.41
Age	0.001	0.000	1	1.88	0.09
Sex	-0.013	0.007	1	-2.01	0.06
Reactivity of agreeableness to warmth	0.068	0.287	1	0.24	0.82
Reactivity of agreeableness to role	0.118	0.050	1	2.37	0.03
Mean dominance	-0.071	0.059	1	-1.20	0.24
Flux in dominance	0.534	0.189	1	2.83	0.01
Reactivity of dominance to low status	0.036	0.037	1	0.97	0.34
Reactivity of dominance to high status	0.001	0.030	1	0.03	0.97

Note. *b* = Unstandardized regression coefficients. "Reactivity" refers to absolute reactivity.

Table 3.6

Flux in Quarrelsomeness Predicted by Mean Quarrelsomeness, Age, Sex, Absolute Reactivity of Quarrelsome Behaviour to Perceived Warmth, and Absolute Reactivity of Quarrelsome Behaviour to the Closeness of the Social Role

Independent Variable	*b*	SE	df	*t*	*p*	ω^2
Mean quarrelsomeness	-0.022	0.060	1	-0.37	0.72	-0.01
Age	-0.001	0.000	1	-1.98	0.05	0.02
Sex	0.003	0.007	1	0.42	0.67	-0.01
Reactivity of quarrelsomeness to warmth	1.180	0.219	1	5.39	< 0.001	0.19
Reactivity quarrelsomeness to role	0.226	0.064	1	3.50	<0.001	0.08

Note: *b* = Unstandardized regression coefficients. ω^2 = Semi-partial effect size. "Reactivity" refers to absolute reactivity.

Table 3.7

Specificity of the Association between Flux in Quarrelsomeness and Absolute Reactivity of Quarrelsome Behaviour versus Absolute Reactivity of Agreeable Behaviour

Independent Variable	*b*	SE	df	*t*	*p*
Mean quarrelsomeness	0.119	0.068	1	1.75	0.08
Age	-0.001	0.000	1	-1.85	0.07
Sex	-0.001	0.006	1	-0.20	0.84
Reactivity of quarrelsomeness to warmth	0.556	0.216	1	2.58	0.01
Reactivity of quarrelsomeness to role	0.209	0.056	1	3.71	< 0.001
Mean agreeableness	0.157	0.063	1	2.47	0.02
Flux in agreeableness	0.674	0.130	1	5.18	< 0.001
Reactivity of agreeableness to role	0.025	0.043	1	0.58	0.56

Note: *b* = Unstandardized regression coefficients. ω^2 = Semi-partial effect size. "Reactivity" refers to absolute reactivity.

Table 3.8

Flux in Dominance Predicted by Mean Dominance, Age, Sex, Absolute Reactivity of Dominant Behaviour to Perceived Agency, Absolute Reactivity of Dominant Behaviour to Low Status, and Absolute Reactivity of Dominant Behaviour to High Status.

Independent Variable	*b*	SE	df	*t*	*p*	ω^2
Mean dominance	-0.058	0.068	1	-0.86	0.40	-0.01
Age	0.000	0.000	1	1.45	0.16	0.02
Sex	-0.001	0.007	1	-0.16	0.88	-0.02
Reactivity of dominance to agency	0.168	0.243	1	0.69	0.50	-0.01
Reactivity of dominance to low status	0.123	0.033	1	3.76	< 0.001	0.27
Reactivity of dominance to high status	0.081	0.027	1	3.01	0.006	0.17

Note: *b* = Unstandardized regression coefficients. ω^2 = Semi-partial effect size. "Reactivity" refers to absolute reactivity.

Table 3.9

Specificity of the Association between Flux in Dominance and Absolute Reactivity of Dominant Behaviour versus Absolute Reactivity of Quarrelsome Behaviour

Independent Variable	*b*	SE	df	*t*	*p*
Mean dominance	0.024	0.063	1	0.37	0.71
Age	0.001	0.000	1	2.74	0.01
Sex	0.001	0.007	1	-0.12	0.91
Reactivity of dominance to low status	0.099	0.033	1	3.00	0.006
Reactivity of dominance to high status	0.074	0.025	1	2.92	0.008
Mean quarrelsomeness	0.122	0.049	1	2.49	0.02
Flux in quarrelsomeness	0.187	0.098	1	1.91	0.07
Reactivity of quarrelsomeness to warmth	0.277	0.280	1	0.99	0.33
Reactivity of quarrelsomeness to role	0.050	0.062	1	0.81	0.43

Note: *b* = Unstandardized regression coefficients. ω^2 = Semi-partial effect size. "Reactivity" refers to absolute reactivity.

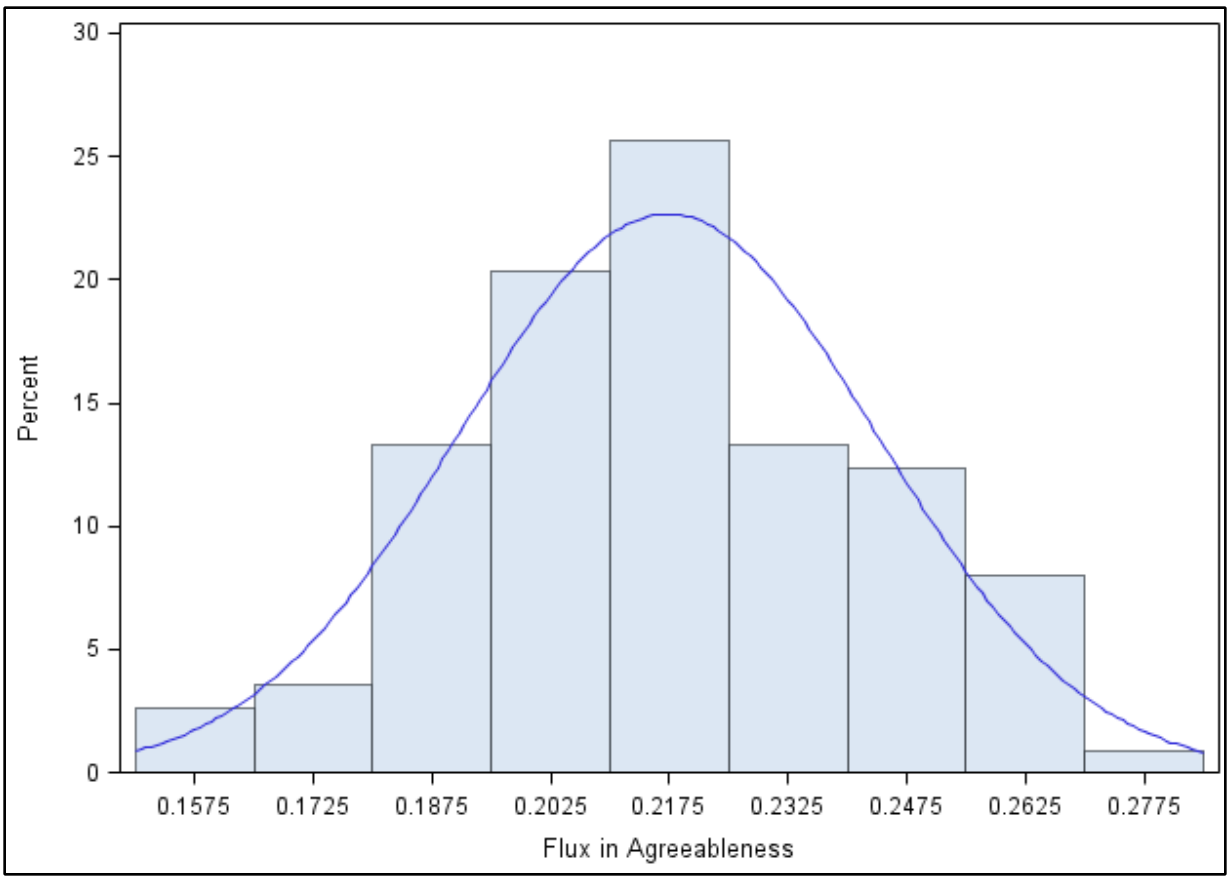

Figure 3.1. The distribution of flux in agreeableness. None of the participants had scores close to 0 indicating that all participants had at least some cross-situational variability in their agreeable behaviour.

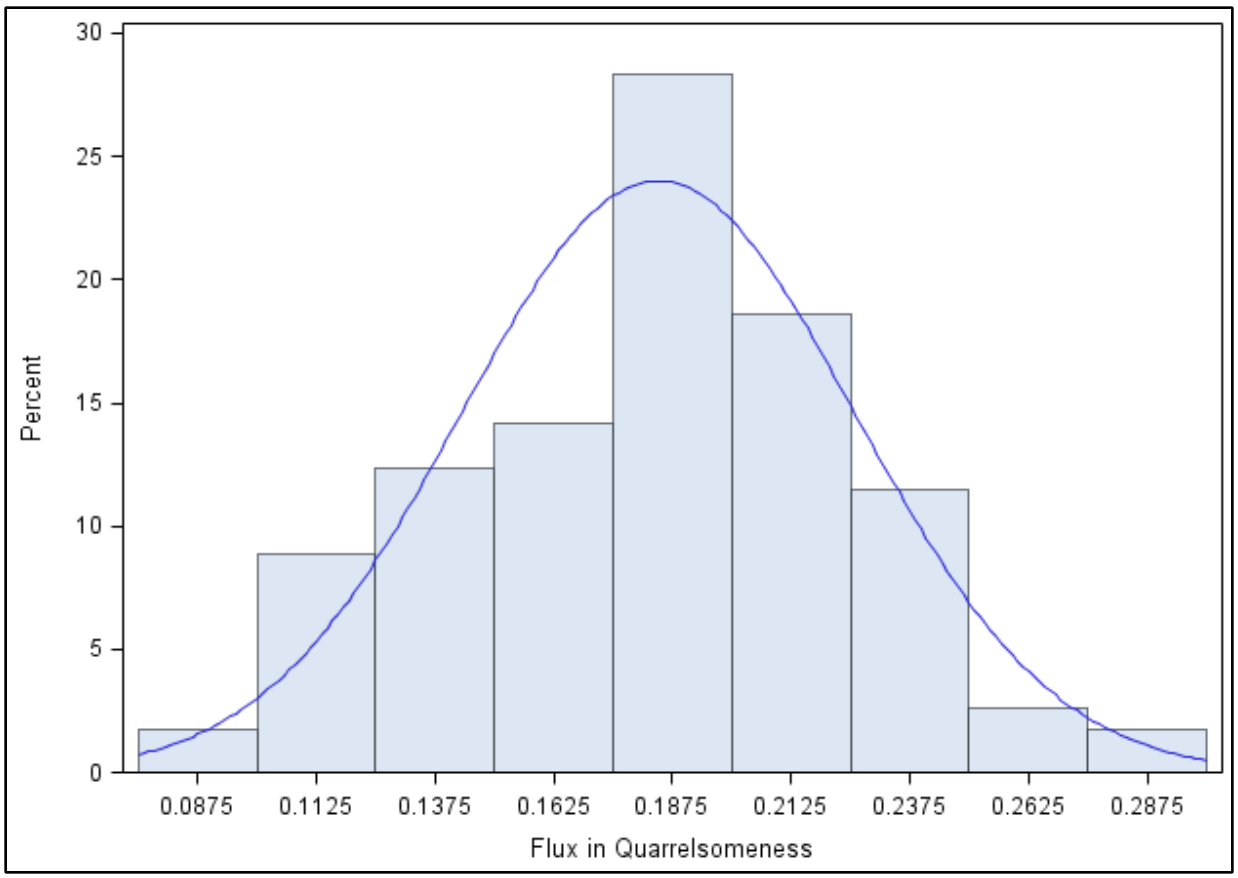

Figure 3.2. The distribution of flux in quarrelsomeness. None of the participants had scores close to 0 indicating that all participants had at least some cross-situational variability in their quarrelsome behaviour.

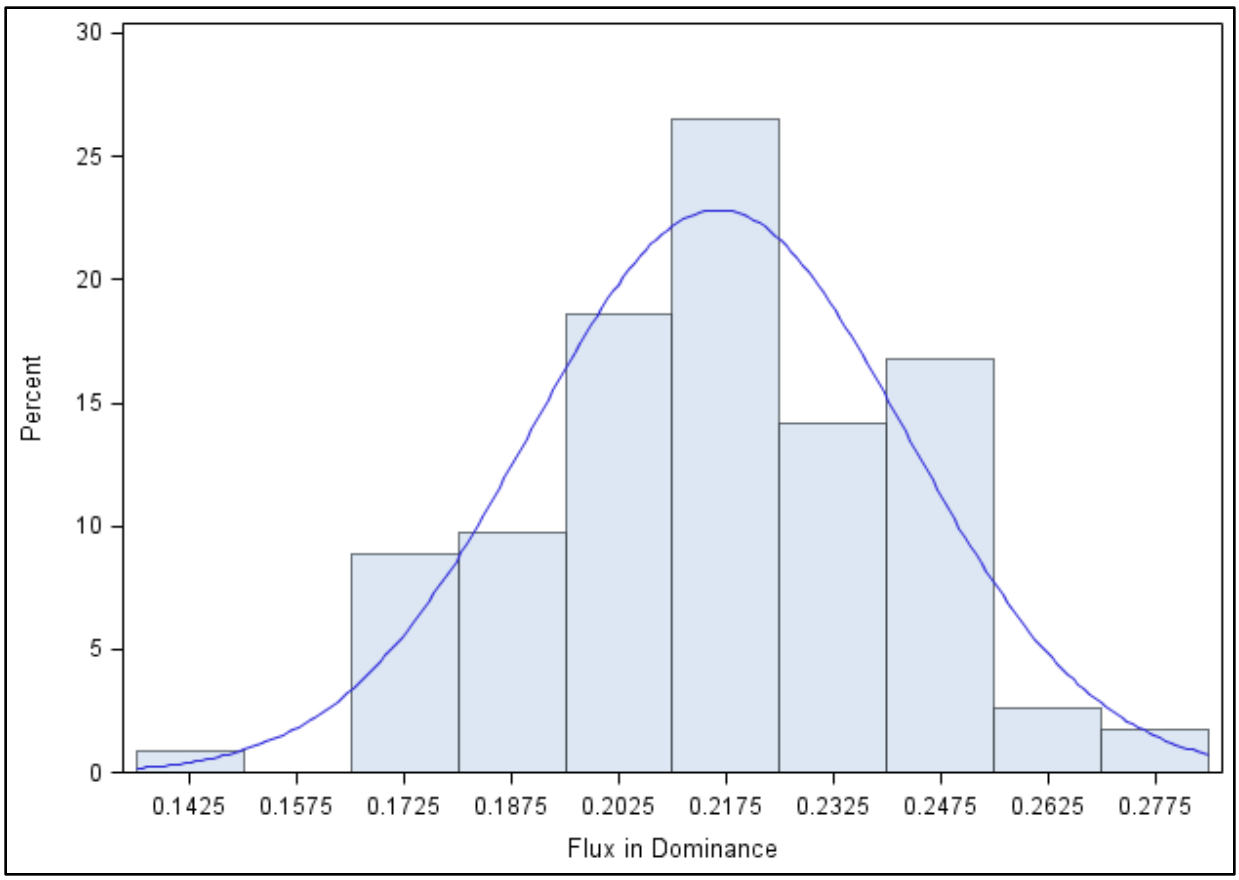

Figure 3.3. The distribution of flux in dominance. None of the participants had scores close to 0 indicating that all participants had at least some cross-situational variability in their dominant behaviour.

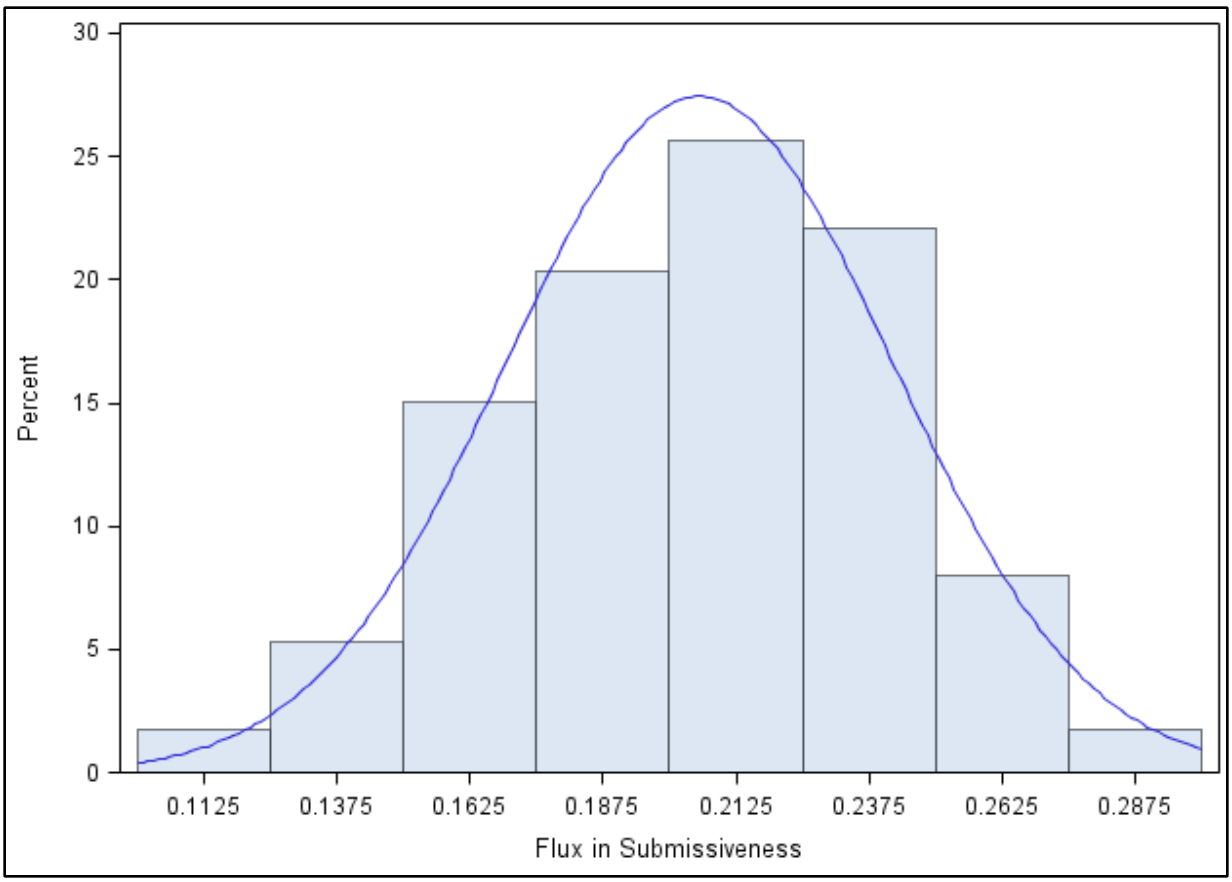

Figure 3.4. The distribution of flux in submissiveness. None of the participants had scores close to 0 indicating that all participants had at least some cross-situational variability in their submissive behaviour.

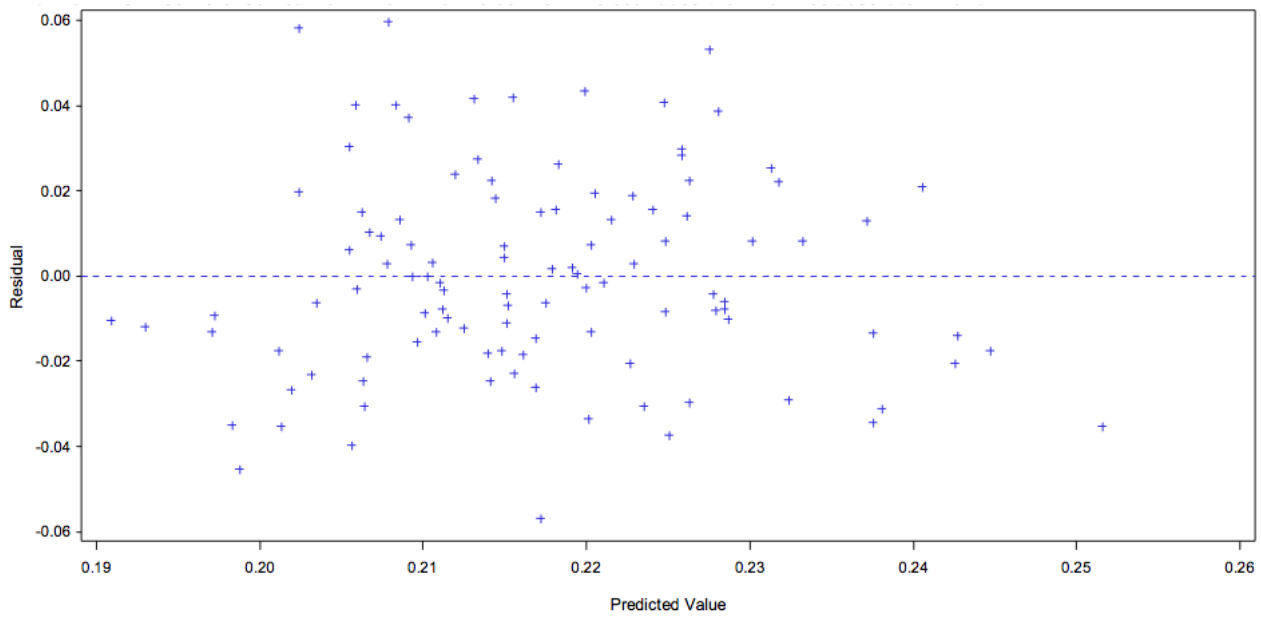

Figure 3.5. Plot of the residuals versus the predicted values of flux in agreeableness. There is no evidence of heteroscedasticity or reduced variance at lower levels of flux, White test $\chi^2(20) = 20.04$, $p = 0.46$.

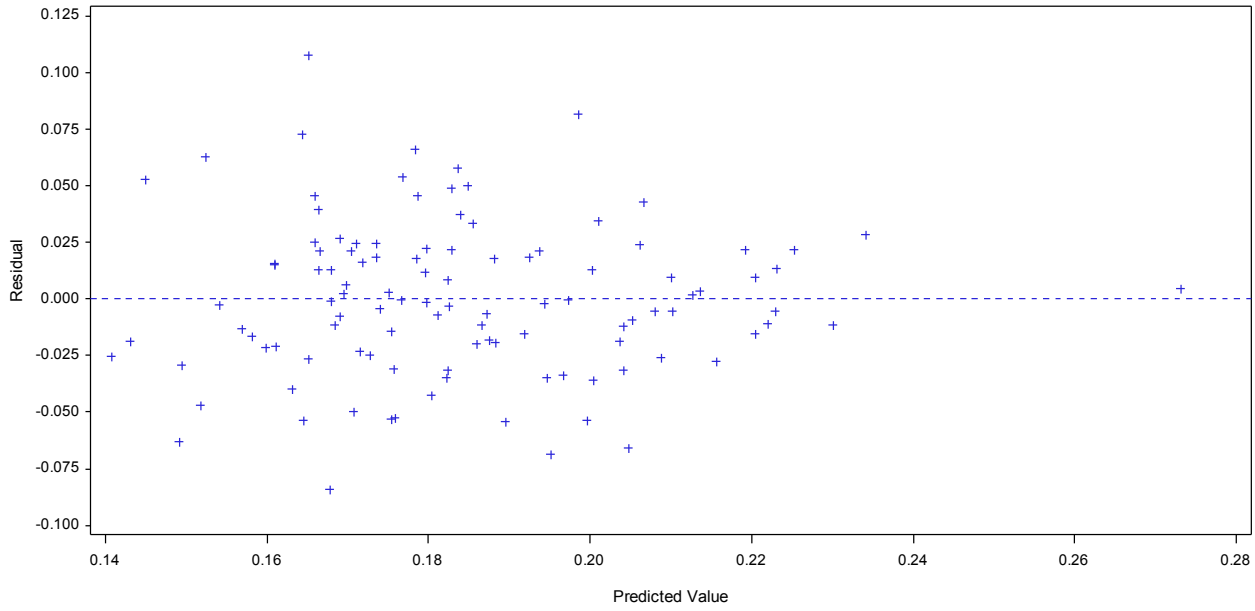

Figure 3.6. Plot of the residuals versus the predicted values of flux in quarrelsomeness. There is no evidence of heteroscedasticity or reduced variance at lower levels of flux, White test $\chi^2(20) = 21.10$, $p = 0.39$.

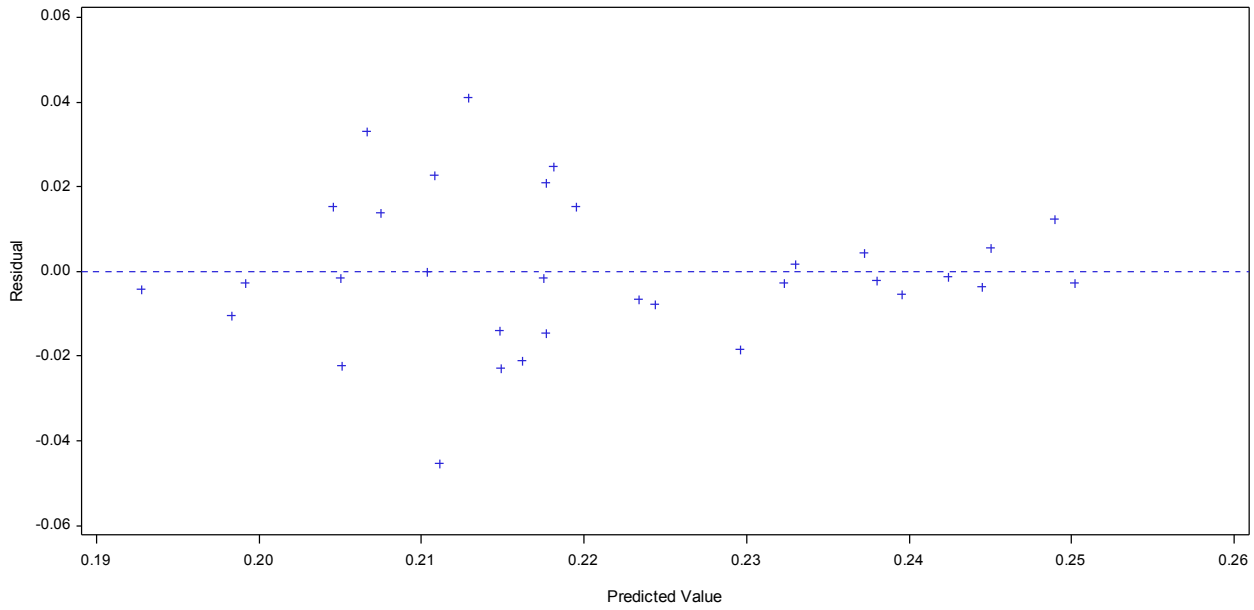

Figure 3.7. Plot of the residuals versus the predicted values of flux in dominance. There is no evidence of heteroscedasticity or reduced variance at lower levels of flux, White test $\chi^2(27) = 22.46$, $p = 0.71$.

Chapter 4: General Discussion

The present research demonstrated that behavioural reactivity scores (situation-based contingencies) can be identified for interpersonal behaviour based on perceptions of others' warmth or agency. Participants adjusted their agreeable, quarrelsome, dominant and submissive behaviour to different degrees and sometimes in different directions in response to these situational cues. As expected, while participants varied mostly in the strength of their reactivity of agreeable and quarrelsome behaviour to perceived warmth, they varied in both the strength and the direction of their reactivity of dominant and submissive behaviour to perceived agency. This suggests a novel explanation for previous mixed findings on reciprocity, namely that while the principle of reciprocity holds on average, not all participants show patterns of behaviour consistent with reciprocity. Behavioural reactivity scores were predicted by personality traits, demonstrating associations between trait levels and patterns of interpersonal behaviour across situations. Finally, results showed that participants higher on intraindividual variability in interpersonal behaviour showed greater behavioural reactivity to both perceptions of others' behaviour and to the closeness and status of the social role. This indicates that intraindividual variability in interpersonal behaviour is not entirely random, but can be partially explained by how strongly people adjust their interpersonal behaviour to situational cues.

Situation-Based Contingencies

Situation-based contingencies consist of a linear association between a person's behaviour and a psychologically-active situational feature. Advances in multilevel modeling have made it possible to examine the unique linear association between a behaviour and a situational cue for each participant in a sample when multiple measurements for each individual are available (Smith et al., 2009). Situation-based contingencies have two major advantages over

traditional behavioural signatures. First, they allow the use of continuous in addition to categorical variables to portray situations; the continuous variables allow for more precise and graded descriptions (Fleeson, 2007). Second, while behavioural signatures describe patterns of behaviour across situations, a psychologically active situational feature that fluctuates along with the behaviour is required to explain differences in behaviour from one situation to the next (Furr, 2009; Shoda et al., 1994). While causality cannot be established in the absence of experimental manipulation, the identification of a psychologically-active situational variable that is linearly associated with the behaviour suggests a causal relation between the two (Furr, 2009).

This research showed that behavioural reactivity scores (situation-based contingencies) can be identified for interpersonal behaviour based on perceptions of others' warmth or agency. Participants consisted of healthy adults working in the community. They reported on interactions occurring at home, at work and in other contexts, allowing for a fully representative sample of their interpersonal interactions. Results showed that on average, participants became more agreeable and less quarrelsome when they perceived greater warmth in others, consistent with the principle of correspondence. On average, they also became less dominant and more submissive when they perceived greater agency, consistent with the principle of reciprocity. There was significant variation among participants in how they adjusted their behaviour to perceived warmth or agency. Participants differed primarily in the strength of their behavioural reactivity to perceived warmth. They differed in both the strength and the direction of their behavioural reactivity to other cues such as perceived agency.

Our findings build on those of Fleeson (2007), Smith and colleagues (2009) and Minbashian and colleagues (2010), who identified situation-based contingencies for other behaviours or personality states. Fleeson (2007) used an experience-sampling procedure in

which participants reported on their Five Factor states and relevant features of the situation. Results showed that situation-based contingencies can be established for Five Factor states based on features of the situation such as the friendliness of the people present. Participants differed in both the strength and sometimes the direction of the correlation between their Five Factor states and the situational features. Smith and colleagues (2009) had trained observers rate youth baseball coaches' behaviour during games. They found that youth baseball coaches showed distinct linear associations between their supportive and instructional coaching behaviour and game score.

Minbashian and colleagues (2010) used an experience-sampling procedure to assess state Conscientiousness and task demand in the workplace. They found significant variation among participants in how they adjusted their state Conscientiousness to the demands of the task. The contingencies were predicted by lower trait Conscientiousness and higher need for cognition. The contingencies in turn predicted adaptive performance on a problem solving task containing items of variable difficulty. This suggests that participants who adjusted their state Conscientiousness to a greater degree based on the demands of the task were better able to perform in the face of problems of varying complexity. The studies by Fleeson (2007), Smith et al. (2009) and Minbashian et al. (2010), together with the present research, demonstrate the feasibility of identifying situation-based contingencies for a range of behaviours and personality states in response to diverse situational features. Situation-based contingencies were established for both children and adults, using both self-report and observer ratings of behaviour.

There has been a call for more research focusing on the individual (Hamaker et al., 2005; Molenaar & Campbell, 2009). Findings that hold for a representative sample of participants may not hold for the individual participants in that sample, given that each individual is

fundamentally unique (Hamaker et al., 2005). Our findings on behavioural reactivity were consistent with these arguments. For example, while participants became less dominant and more submissive on average when they perceived greater agency in others, there was considerable variation among participants in these effects. A minority of participants even showed patterns of responding in the opposite direction.

Complementarity

As expected, the average patterns for the sample were consistent with the principles of complementarity. On average, participants became more agreeable and less quarrelsome when they perceived greater warmth from their interaction partners, consistent with the principle of correspondence. On average, participants also became less dominant and more submissive when they perceived greater agency in others, consistent with the principle of reciprocity. However, there was significant variation among participants in how they adjusted their agreeable and quarrelsome behaviour to perceived warmth, and in how they adjusted their dominant and submissive behaviour to perceived agency.

With respect to reactivity of agreeable and quarrelsome behaviour to perceived warmth, this variability was mostly a question of the strength of the correlation, not the direction. For example, some participants became considerably more agreeable in interactions when they perceived a high level of warmth compared to a low level of warmth. Other participants were only slightly more agreeable in interactions when they perceived a high level of warmth from the other person. Nonetheless, over 90% of participants became more agreeable and less quarrelsome when they perceived greater warmth in others, consistent with the principle of correspondence.

Conversely, there was variation among participants in both the strength and the direction of reactivity of dominant and submissive behaviour to perceived agency. Reactivity scores covered the spectrum from statistically significant correlations in the direction of reciprocity (about 25% of participants), non-significant correlations (about 70% of participants), and finally significant correlations in the direction of anti-reciprocity (about 5% of participants). In other words, some participants became less dominant or more submissive when they perceived greater agency in others, consistent with the principle of reciprocity. Others displayed little change in their dominant or submissive behaviour in response to their perceptions of agency in others across multiple interactions. Finally, contrary to the principle of reciprocity, a minority of participants became more dominant or less submissive when they perceived greater agency in their interaction partners.

These findings are compatible with previous research showing consistent support for correspondence along the communal axis, as almost all participants showed this pattern of responding (e.g. Bluhm, Widiger & Miele, 1990; Sadler, Ethier & Woody, 2011). However, this research offers a novel explanation for previous mixed findings on reciprocity ((Bluhm, Widiger & Miele, 1990; Blumberg & Hokanson, 1983; Roger & Schumacher, 1983). Studies showing mixed findings examined the average effect for the sample. Given the considerable variation among participants in behavioural reactivity to perceived agency, the average effect may be inconsistent based on the composition of each sample. While the principles of complementarity may be sufficient for many purposes, in some cases it may be desirable to know an individual's specific behavioural reactivity to perceived warmth or agency score. This may be particularly relevant in the case of behavioural reactivity to perceived agency given the substantial variation

among participants, both in terms of the strength and the direction of the correlation. The principle of reciprocity may be too broad a generalization.

Behavioural reactivity to perceived warmth and agency may predict interpersonal outcomes. People are more satisfied with interactions in which complementarity occurs and like each other more (Dryer & Horowitz, 1997; Markey, Lowmaster & Eichler, 2010; Tiedens & Fragale, 2003). Thus, individuals with greater behavioural reactivity in the direction of complementarity may be liked more by others. Conversely, people with little association between their dominant or submissive behaviour and their perception of agency in others may come across as interpersonally rigid or have difficulty negotiating outcomes with others. Their behaviour may not be perceived as situationally appropriate. These individuals may hence experience interpersonal distress (Tracey, 2005).

In more extreme cases, behavioural reactivity to perceived warmth and agency may be associated with psychopathology. Excessive behavioural reactivity to perceptions of others' behaviour, particularly when it is in the direction of anti-complementarity, may lead to individuals appearing situationally inappropriate and unpredictable to others. For instance, excessive behavioural reactivity may be present in diagnoses such as Borderline Personality Disorder, which is characterized by high levels of intraindividual variability in interpersonal behaviour (Russell et al., 2007). Future research should examine the interpersonal impact and clinical implications of behavioural reactivity to perceptions of others' behaviour.

Intraindividual Variability

Flux, or intraindividual variability on poles of the Interpersonal Circle, was predicted by greater behavioural reactivity to situational cues. As anticipated, flux in agreeable behaviour was predicted by greater reactivity of agreeable behaviour to perceptions of warmth in others and

to the closeness of the social role. Flux in quarrelsome behaviour was predicted by greater reactivity of quarrelsomeness to perceived warmth and to the closeness of the social role. Flux in dominance was predicted by greater reactivity of dominant behaviour to the power of the social role.

These findings indicate that flux in these behaviours does not solely reflect erratic or uncontrolled behaviour. Instead, individuals high on flux modify their behaviour more in response to features of the situation. For example, a participant high on flux in dominance may behave in a highly dominant manner when in the role of supervisor, but display much less dominant behaviour when in the role of supervisee. This is in contrast to individuals low on flux in dominance, who may only become slightly more dominant when in the role of a supervisor than when in the role of a coworker or supervisee.

Participants high on flux in agreeableness adjusted their agreeable behaviour more in response to perceived warmth in others and the closeness of the social role. A participant high on flux in agreeableness may behave in a highly warm and communal manner when they perceive their interaction partner as being friendly, but display a low level of agreeableness when they perceive their interaction partner as behaving coldly. This participant may further show a high level of warmth when interacting with a friend, but maintain more distance when interacting with an acquaintance. In contrast, a participant low on flux in agreeableness may be only slightly more agreeable when interacting with someone they perceive as behaving warmly as opposed to coldly. This participant may be only somewhat warmer when interacting with a friend versus an acquaintance. Together, these results indicate that variability in a person's behaviour from one event to the next can be partially explained by how strongly the person reacts to situational cues.

Our results are consistent with Fleeson's (2007) findings that intraindividual variability in Five Factor states is predicted by reactivity of those states to situational cues. He concluded that cross-event variability in Five Factor states is meaningful and related to situational characteristics. Intraindividual variability has been shown to be a meaningful aspect of personality for constructs other than interpersonal behaviour and Five Factor states, such as intraindividual variability in affect (Eid & Diener, 1999), perceived control (Eizenman et al., 1997), and self-esteem (Kernis et al., 1991). Future research should determine whether the link between intraindividual variability and reactivity to situational cues exists for constructs other than interpersonal behaviour and Five Factor states. This would indicate a general link between the degree of intraindividual variability and the tendency to adjust to contextual features.

Behavioural reactivity to situational cues accounted for part, but not all of the variance in flux. R^2 ranged from 0.21 for flux in agreeableness to 0.44 for flux in dominance. The question remains of what variables account for the remaining variance in flux. It is possible that more variance in flux would be explained by behavioural reactivity to situational cues that were not included here, such as context of the interaction (e.g. work, home, recreation...) or time of day. Additional variance in flux may also be explained by reactivity to internal cues, such as affect. Finally, it is possible that a certain proportion of flux genuinely represents erratic or uncontrolled behaviour. Future research should aim to account for the remaining variance in flux.

Traits

As anticipated, behavioural reactivity to perceived warmth and agency were predicted by, although distinct from, personality traits. Greater reactivity of agreeable and quarrelsome behaviour to perceived warmth was predicted by higher Extraversion. In other words, Extraverts became much more agreeable and less quarrelsome when they perceived someone as behaving

warmly than when they perceived the other person as behaving coldly. Introverts, on the other hand, only became somewhat more agreeable and less quarrelsome when they perceived their interaction partner as behaving warmly. Behavioural reactivity to perceived warmth was distinct from Extraversion, such that the variation among participants in behavioural reactivity to perceived warmth remained significant after Extraversion was accounted for. This indicates that behavioural reactivity to perceived warmth captures information about the individual that is not contained in their level of Extraversion.

Greater reactivity of dominant behaviour to perceived agency in others in the direction of reciprocity was predicted by higher trait dominance and lower agentic interpersonal climate, which is a tendency to view others as more submissive. Greater reactivity of submissive behaviour to perceived agency in others in the direction of reciprocity was similarly predicted by lower agentic interpersonal climate. Thus, individuals high on trait dominance or who generally perceived others as submissive increased their agency to a greater degree when they perceived their interaction partner as behaving submissively, and decreased their agency more when they perceived the other person as being dominant. On average, participants who generally perceive others as more dominant became significantly less submissive when they perceived greater agency in their interaction partners. The latter finding suggests that anti-reciprocity with respect to submissive behaviour may be more widespread than the minority of participants who showed negative correlations between their submissive behaviour and perceived agency reaching statistical significance on an individual level. Nonetheless, behavioural reactivity to perceived agency was distinct from trait dominance and agentic interpersonal climate. There remained significant variation among participants in their behavioural reactivity to perceived agency

scores, indicating that behavioural reactivity to perceived agency captured information that was not contained in trait levels.

Moskowitz and Zuroff (2005b) found that Extraversion predicted higher flux in agreeableness and quarrelsomeness. The present findings suggest that the higher flux in agreeableness and quarrelsomeness shown by Extraverts may be partially explained by their tendency to adjust those behaviours more to their perceptions of warmth in their interaction partners. The present research showed that individuals higher on trait dominance display greater reactivity of dominant behaviour to perceived agency, and that flux in dominance is predicted by greater reactivity of dominant behaviour to the status of the social role. These findings build on Moskowitz and Zuroff's (2005b) result that individuals higher on dominance show greater flux in dominance. In combination, these findings suggest a link between high trait dominance, high flux in dominance, and a higher capacity to adjust dominant behaviour to the demands of the situation, such as the status of the social role or the level of agency displayed by an interaction partner.

With regards to reciprocity, findings suggested that individuals high on trait dominance or with a tendency to view others as submissive behave similarly to high status individuals. Moskowitz et al. (2007) found that high status individuals, such as supervisors, show a greater degree of reciprocity in their interactions. Moskowitz et al. interpreted their results in light of the finding of higher status decreasing inhibition to act (Keltner et al., 2003). Individuals in higher status roles may have fewer constraints on their behaviour and thus more latitude to adjust their behaviour to the demands of the situation (Moskowitz et al., 2007). The present research demonstrated that individuals with agentic personalities show similar patterns of responding to individuals in high status roles. Individuals with highly agentic personalities may perceive fewer

constraints on their behaviour and hence adjust their behaviour more freely to their perceptions of others' behaviour.

Our results build on those of Minbashian and colleagues (2010), who found an association between situation-based contingencies for state Conscientiousness and personality traits in managers at work. The strength of the association between task demand and state Conscientiousness was predicted by lower trait Conscientiousness, indicating that individuals high on trait Conscientiousness adjusted their state Conscientiousness less to the demands of the situation. Higher need for cognition predicted a stronger relation between state Conscientiousness and task demand. Moreover, a stronger association between state Conscientiousness and task demand in turn predicted better performance on an adaptive problem-solving task. This latter finding suggests that individuals who were better able to adjust their state Conscientiousness to the demands of the situation performed better in the face of tasks of varying complexity.

Taken together, our findings and those of Minbashian et al. (2010) demonstrate a link between personality traits, as measured both with standard personality inventories and as mean behaviour across situations, and situation-based contingencies, meaning cross-situational patterns in states or behaviours. Thus, variation among participants in contingencies can be partially explained by trait levels. Furr (2009) and Fleeson (2007) argued that since situation-based contingencies vary among individuals, they may themselves be trait-like. As such, they would be a unit of personality that captures both between- and within-person differences (Minbashian et al., 2010), and describe how people adjust their behaviour or personality states to the demands of the situation. Future research should determine whether situation-based contingencies can be

identified for other behaviours or personality states, and whether such contingencies would likewise be predicted by traits.

Clinical Applications

Behavioural reactivity scores may have implications for psychopathology. Some disorders may be characterized by atypical patterns of behavioural reactivity to situational cues. For instance, individuals with Borderline Personality Disorder, who demonstrate high levels of intraindividual variability in interpersonal behaviour (Russell et al., 2007), may also display high behavioural reactivity to their perceptions of others' behaviour. Future research should compare the behavioural reactivity scores of individuals with diagnoses of interest to healthy controls.

Assessing behavioural reactivity to situational cues as part of treatment could help individuals with psychopathology to gain greater understanding of interpersonal behaviour that may be problematic for them or maintain their psychological difficulties. Completing an ECR procedure through a smart phone app could allow the identification of problematic patterns of interpersonal behaviour. For example, a pattern of not adjusting dominant and submissive behaviour to agency in others could clarify how difficulties with assertiveness play out in the patient's daily life. A consistent pattern of anti-reciprocity or anti-complementarity could elucidate complaints of chronically unsatisfying interactions, as people like each other more and are more satisfied with interactions when complementarity occurs (Dryer & Horowitz, 1997; Markey, Lowmaster & Eichler, 2010; Tiedens & Fragale, 2003). Future research should evaluate the utility of including an assessment of behavioural reactivity in psychotherapy for individuals with interpersonal difficulties.

Limitations

This research had three principal limitations. First, participants reported on their own behaviour and their interaction partner's behaviour, and so their reports might differ from those that would be obtained from an independent observer. However, it is to their own perceptions of others' behaviour to which participants are responding. Participants' perceptions of their interaction partners' behaviour are arguably as relevant, if not more so, than the perceptions of an independent observer (Moskowitz et al., 2007). Moreover, behavioural ratings of the observer and observed person converge (Moskowitz & Zuroff, 2005a).

Second, there is no information about the order of the behaviours in the interaction. The interaction partner may have behaved a certain way which elicited a response from the participant, or the participant's behaviour may have elicited a response from their interaction partner. As all the interactions lasted for 5 minutes or more, each interaction partner likely had more than one turn to speak. Hence, the participants likely had the occasion to adjust their behaviour to the other person's in each interaction. Regardless, we can assert that behaviours are correlated with perceptions of others' behaviour for each participant over a large number of interactions, that the associations are predicted by trait levels, and that the associations in turn predicts the degree intraindividual variability in interpersonal behaviour.

Finally, although behavioural reactivity may suggest causality, for example that fluctuations in perceived warmth induce participants to adjust their own agreeable and quarrelsome behaviour across interactions, causality cannot be established without experimental manipulation. Rating participants' behaviour in response to standardized levels of warmth and agency in a lab study could clarify these issues.

Future Research

Future research should study behavioural reactivity in the lab. Participants could be exposed to standardized situations differing on the level of a situational cue present and their response could be rated. This would allow for the calculation of participants' behavioural reactivity to that situational cue. For example, participants could be exposed to two situations differing in the warmth expressed by the interaction partner. Measuring the participants' quarrelsome and agreeable behaviour in both situations would permit the measurement of the participants' reactivity of those behaviours to warmth in others. A lab study does not have the same ecological validity or permit assessment of as many or as diverse situations as ECR. Behavioural reactivity scores would likely be less reliable as they would be based on considerably fewer measurements. Nonetheless, replication of the present findings in lab-based research would indicate that they are not an artifact of self-report methodology, and permit the disentanglement of participants' perceptions and objective measures of interaction partners' behaviour. A lab study would further allow the establishment of causality.

Future research should examine the impact of behavioural reactivity scores on interpersonal outcomes. People like each other more and are more satisfied following interactions in which complementarity occurs (Dryer & Horowitz, 1997; Markey, Lowmaster & Eichler, 2010; Tiedens & Fragale, 2003). People who adjust their behaviour to a greater degree in the direction of complementarity may be better liked by others. Conversely, individuals who only weakly adapt their interpersonal behaviour to the behaviour of their interaction partners', or adapt their behaviour in the opposite direction to complementarity, may experience greater distress (Tracey, 2005) as their behaviour may not be perceived as situationally-appropriate.

Finally, future research should aim to account for the remaining variance in flux. Behavioural reactivity to perceptions of others' warmth or agency and to the closeness or the

status of the social role accounted for less than half of the variance in flux in agreeable, quarrelsome and dominant behaviour. The question remains of whether the unexplained variance in flux is accounted for by behavioural reactivity to situational cues not examined here, such as affect or the identity of the interaction partner, or whether a portion of flux captures erratic or uncontrolled fluctuations in interpersonal behaviour from one interaction to the next.

Conclusion

In summary, this research showed that behavioural reactivity scores can be identified for interpersonal behaviour based on the psychologically-active variables of perceptions of others' warmth or agency. Combined with the studies by Fleeson (2007), Smith et al. (2009) and Minbashian et al. (2010), these findings show that situation-based contingencies exist for a variety of behaviours and psychological states in both children and adults.

Participants varied both in the strength and the direction of their behavioural reactivity to perceived agency, which offered new insight into previous mixed findings on reciprocity. While many participants showed patterns of behaviour consistent with reciprocity, others did not adjust their dominant or submissive behaviour much depending on the agency they perceived in others, and a minority showed patterns of behaviour consistent with anti-reciprocity. Participants higher on intraindividual variability in interpersonal behaviour showed greater behavioural reactivity to both perceptions of others' behaviour and to the closeness or status of the social role, indicating that intraindividual variability in interpersonal behaviour is not entirely random. Behavioural reactivity scores were predicted by traits, showing that personality traits predict patterns of interpersonal behaviour across events. However, behavioural reactivity scores were distinct from traits, indicating that behavioural reactivity captures information about the individual that is not contained in trait levels.

Clinically, certain diagnoses may be associated with characteristic patterns of behavioural reactivity. Assessing behavioural reactivity as part of therapy may be informative for patients consulting for interpersonal difficulties. Future research should explore the interpersonal outcomes associated with behavioural reactivity and attempt to explain the remaining variance in flux.

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APPENDICES

APPENDIX A: Social interactions forms (1 – 4) used in Study 1 and 2

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION 1

Time of interaction? am / pm Length of the interaction: _____ minutes Date _____

Briefly describe the social interaction: _____

Where did the interaction occur? ___home ___work ___recreation ___other

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present? Please CIRCLE all those that apply

M	F	SUPER-VISOR	CO-WORKER	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER

Indicate the initials of the primary person ____If more than one other person was present, check here____

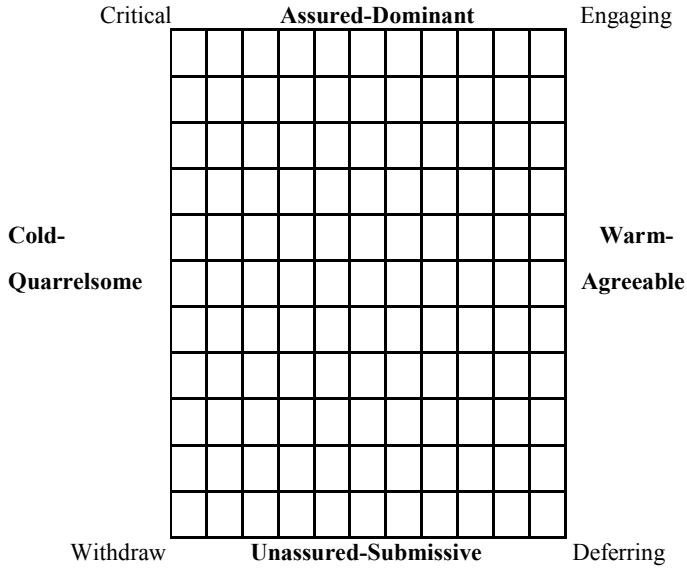
Did you do any of the following acts? Fill in the brackets beside each act you did.

1 I listened attentively to the other..... [ ]
2 I tried to get the other(s) to do something else..... [ ]
3 I let other(s) make plans or decisions..... [ ]
4 I did not say how I felt..... [ ]
5 I confronted the other(s) about something I did not like..... [ ]
6 I expressed affection with words or gestures..... [ ]
7 I spoke in a clear firm voice..... [ ]
8 I withheld useful information..... [ ]
9 I compromised about a decision..... [ ]
10 I took the lead in planning/organizing a project or activity..... [ ]
11 I avoided taking the lead or being responsible..... [ ]
12 I ignored the other(s) comments..... [ ]

How did you feel?

		Not at all 0	1	2	3	4	5	Extremely 6
1	happy.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2	worried/anxious.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3	proud……..	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4	emotionally close to the other(s).....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5	unhappy.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6	frustrated.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7	joyful.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8	depressed/sad.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9	angry/hostile.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10	pleased.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11	enjoyment/fun.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12	grateful……..	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13	inferior to the other……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14	enthusiastic……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15	embarrassed……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16	self-confident……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
17	guilty…….……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
18	lonely……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
19	distressed……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
20	elated……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Place a mark on the grid to indicate how the **other person** was behaving towards you in **this interaction.**



COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION 2

Time of interaction? am / pm Length of the interaction: _____ minutes Date _____

Briefly describe the social interaction: _____

Where did the interaction occur? ___home ___work ___recreation ___other

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present? Please CIRCLE all those that apply

M	F	SUPER-VISOR	CO-WORKER	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER

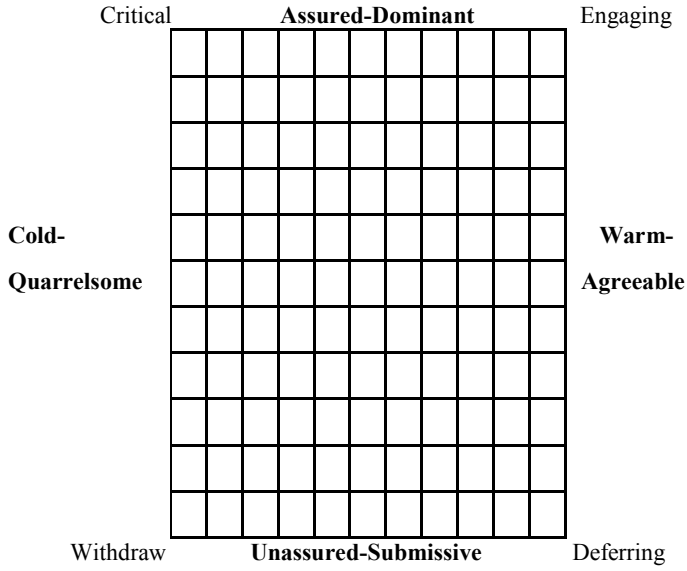
Indicate the initials of the primary person _____If more than one other person was present, check here_____

Did you do any of the following acts? Fill in the brackets beside each act you did.

1	I criticized the other…….....	[ ]
2	I smiled and laughed with the other…….....	[ ]
3	I spoke softly.....	[ ]
4	I made a sarcastic comment.....	[ ]
5	I expressed an opinion…….....	[ ]
6	I complimented or praised the other person.....	[ ]
7	I did not express disagreement when I thought it.....	[ ]
8	I gave incorrect information.....	[ ]
9	I got immediately to the point….....	[ ]
10	I made a concession to avoid unpleasantness…….....	[ ]
11	I did not state my own views…….....	[ ]

How did you feel?	Not at all						Extremely
	0	1	2	3	4	5	6
1 happy.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2 worried/anxious.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3 proud……..	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4 emotionally close to the other(s).....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5 unhappy.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6 frustrated.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7 joyful.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8 depressed/sad.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9 angry/hostile.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10 pleased.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11 enjoyment/fun.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12 grateful……..	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13 inferior to the other……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14 enthusiastic……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15 embarrassed……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16 self-confident……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
17 guilty…….……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
18 lonely……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
19 distressed……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
20 elated……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Place a mark on the grid to indicate how the **other person** was behaving towards you in **this interaction.**



COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION 3

Time of interaction? am / pm Length of the interaction: _____ minutes Date _____

Briefly describe the social interaction: _____

Where did the interaction occur? ___home ___work ___recreation ___other

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present? Please CIRCLE all those that apply

M	F	SUPER-VISOR	CO-WORKER	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER

Indicate the initials of the primary person _____ If more than one other person was present, check here_____

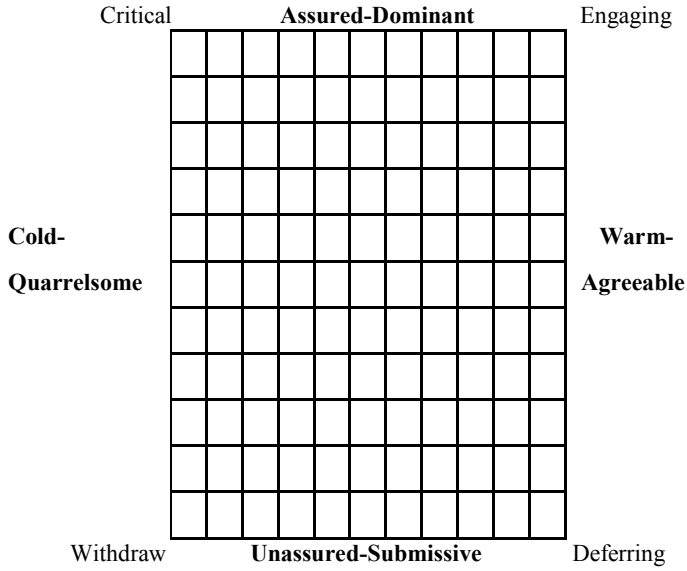
Did you do any of the following acts? Fill in the brackets beside each act you did.

1 I waited for the other person to act or talk first..... [ ]
2 I stated strongly that I did not like or that I would not do something..... [ ]
3 I assigned someone to a task……..... [ ]
4 I exchanged pleasantries…..... [ ]
5 I did not say what was on my mind…….....[ ]
6 I did not respond to the other's questions or comments..... [ ]
7 I made a suggestion…….....[ ]
8 I showed sympathy…….....[ ]
9 I did not say what I wanted directly..... [ ]
10 I discredited what someone said…….....[ ]
11 I asked the other to do something.....……..... [ ]
12 I spoke favorably of someone who was not present..... [ ]

How did you feel? Not at all Extremely

		0	1	2	3	4	5	6
1	happy.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2	worried/anxious.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3	proud……..	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4	emotionally close to the other(s).....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5	unhappy.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6	frustrated.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7	joyful.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8	depressed/sad.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9	angry/hostile.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10	pleased.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11	enjoyment/fun.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12	grateful……..	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13	inferior to the other……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14	enthusiastic……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15	embarrassed……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16	self-confident……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
17	guilty…….……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
18	lonely……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
19	distressed……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
20	elated……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Place a mark on the grid to indicate how the **other person** was behaving towards you in **this interaction.**



COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION 4

Time of interaction? am / pm Length of the interaction: _____ minutes Date _____

Briefly describe the social interaction: _____

Where did the interaction occur? ___home ___work ___recreation ___other

If alcohol was consumed within the last 3 hours, how many alcoholic beverages were consumed? _____

Who was present? Please CIRCLE all those that apply

M	F	SUPER-VISOR	CO-WORKER	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER

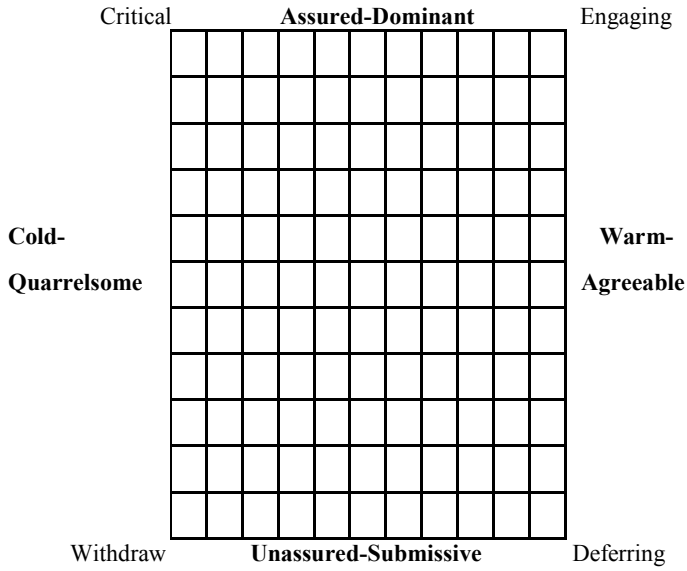
Indicate the initials of the primary person _____ If more than one other person was present, check here_____

Did you do any of the following acts? Fill in the brackets beside each act you did.

1	I showed impatience…….....	[ ]
2	I asked for a volunteer….....	[ ]
3	I went along with the other..……....	[ ]
4	I raised my voice…….....	[ ]
5	I gave information……..……....	[ ]
6	I expressed reassurance…….....	[ ]
7	I gave in…….……....	[ ]
8	I demanded that the other do what I wanted.....	[ ]
9	I set goals for the other or for us….....	[ ]
10	I pointed out to the other where there was agreement.....	[ ]
11	I spoke only when I was spoken to..……....	[ ]

How did you feel?	Not at all						Extremely
	0	1	2	3	4	5	6
1 happy.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2 worried/anxious.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3 proud……..	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4 emotionally close to the other(s).....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5 unhappy.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6 frustrated.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7 joyful.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8 depressed/sad.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9 angry/hostile.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10 pleased.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11 enjoyment/fun.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12 grateful……..	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13 inferior to the other……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14 enthusiastic……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15 embarrassed……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
16 self-confident……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
17 guilty…….……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
18 lonely……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
19 distressed……	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
20 elated……...	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Place a mark on the grid to indicate how the **other person** was behaving towards you in **this interaction.**



APPENDIX B: Ethics Approval for Studies 1 and 2

McGill

Research Ethics Board Office
McGill University
845 Sherbrooke Street West
James Administration Bldg., rm 429
Montreal, QC H3A 2T5

Tel: (514) 398-6831
Fax: (514) 398-4853
Ethics website: www.mcgill.ca/rgo/ethics/human

Research Ethics Board II
Certificate of Ethical Acceptability of Research Involving Humans

Project Title: Context and Flux in Interpersonal Behavior

Applicant's Name: Dr. D. S. Moskowitz **Department:** Psychology

Status: Faculty

Supervisor's Name (if applicable): N/A

Granting Agency & Grant Title (if applicable): SSHRC

This project was reviewed on March 25, 2003 by

Expedited Review _____ Full Review ✓

Blaine Ditto
Signature

03/25/03
Date

Blaine Ditto, Ph.D.
Chair, REB II

Approval Period : March 25, 2003 **to** March 24, 2004.

REB File #: 520-0303