Department of Social and Organizational Psychology

Relational Complementarity: the Motivational Form of Social Relationships

A Dissertation presented in partial fulfillment of the Requirement for the Degree of Doctor in Psychology

Nuno Patrício Varandas da Costa

Supervisor:

Doutor Sven Waldzus, Professor Associado com Agregação do Departamento de Psicologia Social e das Organizações do ISCTE - Instituto Universitário de Lisboa

Co-supervisor:

Doctor Alan Page Fiske, Full Professor at University of California, Los Angeles

December, 2016

Department of Social and Organizational Psychology

Relational Complementarity: the Motivational Form of Social Relationships

A Dissertation presented in partial fulfillment of the Requirement for the Degree of

Doctor in Psychology

Nuno Patrício Varandas da Costa

Jury Composition:

Doutora Isabel Alexandra de Figueiredo Falcão Correia, Professora Associada com Agregação do Departamento de Psicologia Social e das Organizações do ISCTE - Instituto Universitário de Lisboa (President)

Doutor Rodrigo Craveiro dos Reis da Costa Brito, Professor Associado da Universidade Lusófona de Humanidades e Tecnologias, Lisboa

Doutora Cláudia Patrícia Candeias Simão, Investigadora na Católica Lisbon School of Business and Economics, Lisboa

Doctor Vivian Bohl Puusepp, Researcher at Department of Philosophy, University of Tartu, Estonia

Doutora Rita Isabel Saraiva Jerónimo, Professora Auxiliar do Departamento de Psicologia Social e das Organizações do ISCTE - Instituto Universitário de Lisboa

Doctor Alan Page Fiske, Full Professor at University of California, Los Angeles (Co-supervisor)

Doutor Sven Waldzus, Professor Associado com Agregação do Departamento de Psicologia Social e das Organizações do ISCTE - Instituto Universitário de Lisboa (Supervisor)

December, 2016

RESUMO

O que motiva as pessoas para se coordenarem socialmente? Tendo como base a teoria dos modelos relacionais, e perspetivas filosóficas e psicológicas da ação conjunta, proponho que todas as formas de coordenação social requerem que os participantes produzam ações congruentes com as ações dos parceiros, de acordo com modelos relacionais cognitivos partilhados. Quando as ações de todos os participantes em interação se ajustam, criam um padrão de Complementaridade Relacional (CompRel). Assim, a CompRel é o objetivo intrínseco a todas as formas de coordenação. Partindo desta conceptualização, esta tese apresenta duas hipóteses teóricas. Primeiro, a CompRel é inerentemente gratificante; a perspetiva de CompRel é suficiente para motivar o comportamento, na ausência de recompensas ulteriores à coordenação. Quatro estudos testaram se os participantes primados com o objetivo de CompRel (vs. não primados) ficariam mais motivados para seguirem as instruções de um experimentador e, por isso, fariam mais esforço para completarem as tarefas pedidas durante a sessão experimental. Os resultados não suportaram a hipótese de que a CompRel motiva o comportamento social. Contudo, uma outra linha de cinco estudos demonstrou que a CompRel é gratificante, revelando que os participantes experimentaram mais afeto positivo em interações complementares (vs. não-complementares). A segunda hipótese teórica propõe que, sendo a CompRel intrínseca à coordenação, é suficiente para satisfazer os motivos que têm sido propostos para explicar o comportamento coordenado. Cinco estudos demonstraram que os participantes experimentaram mais controlo, pertença e confiança em interações complementares (vs. não-complementares), e que estes efeitos não puderam ser explicados pelas expectativas em relação à ação do parceiro nem pelos benefícios da coordenação.

Palavras-chave: coordenação social, interação social, modelos relacionais, complementaridade relacional, motivação, controlo, pertença, confiança

Códigos de Classificação pela Associação Americana de Psicologia (PsychINFO Classification Categories and Codes):

3000 Psicologia Social

3020 Processos Grupais e Interpessoais

2360 Motivação e Emoção

ABSTRACT

What motivates people to engage in coordinated social interactions? Building on relational models theory, and on philosophical and psychological accounts of joint action, I propose that all forms of coordination require participants to generate actions that are congruent with the actions of the partners, according to shared cognitive relational models. When the actions of all interacting participants fit together, they create a pattern of Relational Complementarity (RelComp). Hence, RelComp is the goal intrinsic to all forms of coordination. Building on this conceptualization, this thesis addresses two theoretical hypotheses. First, RelComp is inherently satisfying; the prospect of RelComp is sufficient to motivate behavior in the absence of rewards ulterior to coordination. Four studies tested whether participants primed with RelComp as a goal (vs. non-primed) would be more motivated to follow the instructions of an experimenter, and therefore, would spend more effort to complete the tasks requested during the experimental session. The results did not support the hypothesis that RelComp motivates social behavior. However, a second unrelated line of five studies demonstrated that RelComp is satisfying, by showing that participants experienced more positive affect in complementary (vs. non-complementary) interactions. The second theoretical hypothesis states that, since RelComp is intrinsic to coordination, it is sufficient to fulfill the motives that have been proposed to explain coordinated behavior. Five studies showed that participants experienced higher control, belonging and trust in complementary (vs. non-complementary) interactions, and that these effects could not be explained by expectations about the partner's actions, nor by the benefits of coordination.

Keywords: Social coordination, social interactions, relational models, relational complementarity, motivation, belonging, control, trust.

Classification Codes by American Psychological Association (PsychINFO Classification Categories and Codes):

3000 Social Psychology

3020 Group & Interpersonal Processes

2360 Motivation and Emotion

The research reported in this dissertation was supported by a Doctoral Grant (SFRH/BD/71045/2010) from the Fundação para a Ciência e a Tecnologia

Acknowledgments

I am grateful to Sven Waldzus and Alan Page Fiske for accepting to supervise this work in the first place, for their taste for big questions and profound ideas, and for their guidance, support, inspiration, kindness, flexibility and patience;

to Vivian Puusepp for her crucial comments on early versions of Chapter 2 and for introducing me to the literature on Philosophy;

to Elizabeth Collins, Thomas W. Schubert, Ana Louceiro, Cláudia Simão, Kinga Bierwiaczonek, Carla Esteves, Miriam Rosa, Psychange and Sven's team members, for their feedback on several stages of this work and overall support with technical issues;

to Kinga Bierwiaczonek, Carla Esteves, Miriam Rosa also for their constant encouragement;

to ISCTE-IUL, the Department of Social and Organizational Psychology, CIS-IUL, and LAPSO, for providing the training, resources and technical support necessary to complete this thesis;

to FCT, for the financial support that made this PhD possible;

to Rui and Bárbara, and to my friends from CECC, for helping me find the strength and confidence to keep moving forward, one step at a time, even when I could not see the end of the road;

to Rosana, Alfredo, Sónia, for being such wonderful parents-in-law;

to Mariana, Diogo and Susana, José and Daniela, for softening the last six years of my life with their friendship;

to my dear parents and brother for their love, for being always responsive to my needs – especially when I did not express them – and for helping me keep my head held high during the hardest times of this PhD;

to my beloved wife, for all the sacrifices she made to make this PhD possible, for easing my heart when I couldn't think clearly, for sharing every bit of agony and fulfillment of this intellectual struggle… for being the joy of my life.

TABLE OF CONTENTS

CHAPTER 1
Motivations for Social Relationships

Coordinated interactions between individuals, groups, institutions or nations are the prevalent condition of human relationships. From opening a door to a stranger to making an online purchase, from handshaking to negotiating national debt payments, from nursing a baby to managing an organization, from fighting in a boxing match to engaging in armed conflict conducted with some reference to international laws, people usually relate in an orderly fashion with one another. What motivates them to do so? The assumption behind this question is that human beings are anticipatory agents (Veroff & Veroff, 1980) with desires, needs, whishes, hopes, and intentions (Pittman, 1998) – sometimes unconscious (McClelland, 1987; Bargh, 1990) or irrational, whose behaviors are often more flexible than reflexive reactions or fixed action patterns (Park & Buunk, 2011). If people frequently produce structured interactions with different degrees of complexity and flexibility, and in a broad variety of contexts, then, it is not unreasonable to assume that, for some reason, they *want* to do so.

The goal of this thesis is to present a motivational account of social relationships, in particular, coordinated social interactions. Relying on anthropological, philosophical and psychological approaches to social coordination and joint action, I propose that when relating to each other people engage in interaction patterns of Relational Complementarity. These patterns are constituted by actions by each agent that are complementary, or mutually congruent, according to subjectively shared cognitive models or prototypes of social relationships that inform which actions by each agent fit together in specific situations (A. Fiske, 1991, 1992). Some examples of such patterns are two individuals shaking hands, a buyer and a seller trading money for a service, a couple dancing, a subordinate following orders from the boss, or rival gangs engaging in tit-for-tat retribution. Hence, all coordination that is not accidental (e.g., two strangers travelling on the same bus) requires Relational Complementarity, and social relationships are initiated and sustained to the extent that people are able to engage in relational patterns of complementarity with one another. My proposal is that Relational Complementarity is a motivating end-state in the sense that it energizes and directs participants to perform their parts of the pattern (e.g., I hold my right hand out to you) on concrete situations, while expecting, hoping, or inducing the partners to perform their part

(e.g., you grasp my hand) until the pattern is completed (e.g., a handshake). In other words, Relational Complementarity motivates humans to relate to one another in coordinate ways.

To be sure, this proposal does not exclude the fact that humans have additional motives to relate—motives that can, occasionally, be more pressing than Relational Complementarity. Instead, it implies that coordinated interactions are intrinsically motivating even when individuals lack ulterior goals. On the other hand, I argue that many psychological needs and non-relational goals that may motivate people to engage in social interaction in the first place are usually fulfilled by means of Relational Complementarity. Furthermore, it is also possible that individual differences in other motivations can shape preferences for particular kinds of relational patterns.

Before presenting my proposal in detail, I justify the relevance of a new account by briefly discussing some limitations of two common approaches to the study of social motivation.

1.1. Setting-based Approaches

It is widely accepted among social scientists, and intuitive to the lay person, that relationships allow human beings to achieve outcomes that are important for survival and well-being (e.g., Kelley & Thibaut, 1978; Blau, 1964). By means of group memberships, coalitions, pair bonds, and kin relationships, humans, like most animals, increase their chances of survival and reproduction. Social collectives offer protection against diseases, predators, and rivals; and cooperative alliances bring about outcomes that are beyond the reach of individual efforts, such as buildings and infrastructures. In fact, social interactions allow individuals to exchange all kinds of desirable resources, such as, money, goods, services, information (Turner, Foa & Foa, 1971). In addition to fulfilling survival needs, and offering objective material resources, social interactions also yield subjective psychological incentives, for instance, love, intimacy, emotional support (e.g., Hill, 1987; McAdams, 1980; Murray, 1938; Turner, et al., 1971), praise, respect (e.g., Buss, 1983), dominance, power (e.g., Murray, 1938; Veroff, 1957), approval (Crowne & Marlowe, 1964), self-esteem and sense of identity (Tajfel & Turner, 1979), to name a few.

Given the wide variety of possible objective and subjective consequences of social interactions, one common approach to the study of social behavior is to describe behavior in specific settings, and interpret results based on the assumption that people want a particular

incentive (Veroff & Veroff, 1980). To illustrate, ingroup favoritism and outgroup derogation have been explained by assuming that individuals seek positive self-esteem from their social identities (Oakes & Turner, 1980; Tajfel & Turner, 1979); it has been shown that experiencing high anxiety motivates people to seek the company of strangers (Schachter, 1959); a need for approval has been suggested to describe why people conform to social norms (e.g., Deutsch & Gerard, 1955); a control motive has been proposed to explain obedience to authorities, compliance with requests (e.g., Fennis & Aarts, 2012), and the seeking of power positions (S. Fiske & Dépret, 1996); it has been argued that people join social groups in order to reduce their uncertainty about themselves and the environment (Hogg, 2000); and prosocial behavior is thought to be motivated by mood maintenance (Cialdini, Darby & Vincent, 1973) or by trust in the other's good intentions (Dunning, Anderson, Schlösser, Ehlebracht, & Fetchenhauer, 2014; Dunning, & Fletchenhauer 2011).

These examples should make clear that one drawback of setting-based approaches is that commonalities between apparently distinct phenomena are disregarded (Veroff & Veroff, 1980). As they offer disconnected accounts of particular kinds of relationships (e.g., romantic relationships, power relationships), levels of analysis (e.g., interpersonal and intergroup relationships), or social phenomena (e.g., social influence, aggression, altruism, conflict, interpersonal attraction), different psychological theories have to be employed as researchers switch their attention from one setting to another (Veroff & Veroff, 1980). Only at the expense of great effort and imagination can these theories be applied to relationships, levels-of analysis, or phenomena other than those they were meant to explain in the first place. To be sure, each context and level of analysis has its own specificities, but to fully understand social motivation, it is also necessary to describe the processes and motives that cut across social relationships at all levels, and contexts.

1.2. Need-based Approaches

An alternative approach to describing particular behaviors is to focus on how universal human dispositions energize and direct behavior across settings (e.g., Freud, 1914/ 1953; Maslow, 1943; McDougall, 1908; Murray, 1938). To date, several human needs at different levels of analysis have been proposed as fundamental drives behind action and cognition (cf. Pittman & Ziegler, 2007, for review). Some examples are safety (Maslow, 1943) or self-preservation (Pyszcsynski, Greenberg, & Solomon, 1997) needs, at the biological level; needs for autonomy, competence (Deci & Ryan, 2000), self-esteem (Pyszcsynski, et al., 1997),

understanding (Stevens & S. Fiske, 1995), or controlling (Heckhausen & Schulz, 1995), at the individual level; or relatedness (Deci & Ryan, 2000) and belongingness (Baumeister & Leary, 1995) needs, at the social level (see also S. Fiske, 2004, 2008).

Even though, such theories have generated a considerable amount of research about the impact of fundamental needs on social behavior, they are still limited explanations of coordinated social interactions. If descriptions of motivated behavior in particular settings are too specific to be generalized to other contexts, fundamental human needs are too broad to predict behavior in specific settings. Need-based accounts successfully explain what energizes behavior, but are not so effective in describing what directs it in particular social interactions. Usually, need-based theories require context-specific assumptions and moderators, which are usually more informative about social behavior than the need itself. I illustrate that next with two examples.

There is evidence that a need to maintain a sense of control motivates individuals (under control deprivation) to comply with requests and follow orders (Fennis & Aarts, 2012). However, such explanation assumes that coordinating is a more effective strategy to restore personal control than refusing to comply or doing something else, instead. It is not difficult to imagine the great sense of personal control that one experiences when refusing to do what others want; toddlers, children, teenagers, or anyone resisting authority gains control. In addition, it is known that frustration (i.e., lack of control) also motivates people to engage in aggressive behavior towards others (Dollard, Doob, Miller, Mowrer, & Sears, 1939; Geen, 1968), who are sometimes innocent third parties (Marcus-Newhall, Pedersen, Carlson, & Miller, 2000). Hence, further processes are required to describe the conditions under which people fulfill their need for control by relinquishing control to external agents or by attempting to aggressively dominate other people.

The second example is related to the need to belong. It has been shown that individuals deprived of belonging (through social exclusion) show increased prosocial behavior towards new interaction partners as means of gaining acceptance (e.g., Maner, DeWall, Baumeister, Schaller, 2007). However, such an effect seems to be moderated by the kind of relationship with the new partner. Prosocial behavior is increased by social exclusion when the interaction partner is a peer, i.e., a potential friend (Maner, et al., 2007), but is decreased when the partner is the experimenter (Twenge, Baumeister, DeWall, Ciarocco, Bartels, 2007, study 3), i.e., a stranger or a hierarchical superior. On the other hand, social exclusion also motivates

antisocial behavior towards those who rejected the individual (Twenge, Baumeister, Tice, & Stucke, 2001). This probably depends on perceptions of unfairness of the rejection, expectations of relationship repair, possibility of alternatives, etc., as suggested by Richman and Leary (2009; for reviews on prosocial and antisocial effects of social exclusion cf. Baumeister, Brewer, Tice & Twenge, 2007; and DeWall & Richman, 2011). Hence, additional processes of relational cognition are necessary to explain how the need to belong directs social behavior in particular settings.

Furthermore, the need to belong has been defined as a human "pervasive drive to form and maintain at least a minimum quantity of lasting positive and significant interpersonal relationships" (Baumeister & Leary, 1995, p. 497). However, humans frequently engage in coordinated interactions which are trivial and offer no opportunity for lasting connections (e.g., helping a tourist, or making an online donation). Thus, to explain such types of interactions in terms of a need to belong requires the assumption that people expect that a lasting and positive relationship can be formed in any interaction. Such an assumptions is deemed implausible

An additional limitation of need-based theories is that they rely on assumptions about the nature of individual human beings, while neglecting the nature of social relationships as natural kinds. In other words, they focus on particular human motives and describe all sorts of actions employed to fulfill them, but they do not acknowledge the distinction between social and non-social actions. What is the difference between using a tool or consuming a resource and acting together with another agent? Do they feel the same even if they are motivated by the same need? Not acknowledging the nature of social relationships and the properties that make them uniquely and intrinsically appealing to human beings is to miss an important part of the story of social motivation. As a rough comparison, it is one thing to say that humans eat to experience pleasure or to avoid the distress of low blood sugar levels; it is another thing to say that food has nutrients, taste, aroma and texture that provide humans the pleasure and relief they seek. Any account of the hunger motive that is based exclusively on a description of the human organism can explain why humans seek something to eat, but not why they choose to eat vegetables instead of hay, cooked instead of raw meat, combined instead of single ingredients, or why they keep eating after their stomach is full.

In summary, neither of the two approaches addresses motivation for coordinated social relationships, as such. Setting-based approaches describe what motivates social behavior in

particular contexts, and can hardly be generalized to all contexts. Need-based approaches describe how basic needs affect behavior in general, and cannot explain specific behavior without context-specific assumptions. While the former neglect what is common to all kinds of relationships and social interactions, the latter disregard the uniqueness of *social relational* behavior and its fundamental differences from non-social action. My proposal seeks to overcome these limitations by focusing on the properties of coordinated interactions, namely, on universal and basic structures of social relations.

1.3. A Relational-structure-based Approach

According to Relational Models Theory (A. Fiske, 1991, 1992), all human relationships across cultures are structured according to four cognitive models: Communal Sharing, Authority Ranking, Equality Matching and Market Pricing. Communal Sharing relations are based on what people have in common (e.g., group membership); Authority Ranking relationships rely on how individuals are ordered on a relevant dimension (e.g., military rank); Equality Matching relations consist of maintaining even balance by adding and subtracting the contributions of each participant (e.g., turn-taking); and Market Pricing relations are about proportionality through the use of ratios and rates (e.g., money). Relational models (RM) are schemas or prototypes of elementary social relationships that people use to understand, anticipate and evaluate the actions of others, as well as to plan and generate their own actions. These models are innate but their implementation is culturally informed. The cultural implementations allow individuals to represent when, with whom, in respect to what aspects of the interaction, and how each participant proceeds in a specific cultural context. In this sense, they inform (in the descriptive and prescriptive sense) which part each participant has to play, and how the actions of both actions must be combined for the model to be fulfilled. Whether individuals are helping a friend or cuddling, following orders or leading others, exchanging favors, or making business, the fulfillment of any RM requires that participants complement each other's actions, according to a shared representation of their relationship. In other words, Relational Complementarity is the necessary condition for any RM to be fulfilled, and, thus, for any interaction to be successfully coordinated.

Such a premise has some important implications. First, interacting in a relational way – usually with human beings, but also with animals, supernatural beings, and sometimes with objects – is essentially distinct from non-relational interactions, such as going around an obstacle or using a tool to achieve a goal (and as I will discuss in the next chapter, sometimes

people treat each other as mere obstacles or tools). Engaging in a social relationship implies *shared* agency, acting *together,* or doing something *with* another agent. It means to share a goal that is intrinsically collective in the sense that no agent can fulfill a RM or achieve Relational Complementarity by himself. There is no leadership without a leader *and* a follower, there is no business without a seller *and* a buyer, and there is no handshake without two participants—both reaching out at the same time, to the other's hand. Hence, the actions by each participant presuppose fitting actions by the other, and are only meaningful and complete with reference to one another. When pursuing Relational Complementarity, each participant assumes, hopes, or wishes that her goal is shared by the other ("it is our goal", "we are pursuing it together"). In non-relational interactions, on the other hand, individuals act *alone* and, at most, do something *to* other people or objects. They wear clothes, they use a coffee maker, or they avoid objects and individuals who stand in their way, and the goal is owned by the individual alone ("it is my goal").

A second implication is that Relational Complementarity can be conceptualized as a goal, the content of which is common to all coordinated interactions, and essentially different from other kinds of goals. Relational Complementarity can take the form of different relational patterns depending on which RM is applied and how it is implemented on particular interactions. Hence, when coordinating, people seek to fulfill a relational pattern. The adopted relational pattern informs, in a descriptive and prescriptive sense, which actions by each participant are relevant for coordination, and which are not, and which actions by one individual should precede, follow, or be performed simultaneously with which actions by the other. In this sense, the relational pattern is the goal energizing and directing the actions of each participant towards the other, as well as their evaluations about previous actions by the other, their expectations about future actions by the other, and their attention to and monitoring of the relevant actions by the other. In other words, by understanding the relational patterns that participants apply to their interactions, it is possible to make predictions about their actions and cognitions in particular situations[1].

[1] To say that Relational Complementarity is the goal common to all coordinated social interactions does not mean that it is the only goal or even the main goal of social coordination. In the extreme case of a sociopath, individuals use social coordination to exploit the partner in order to achieve their individual goals. In this case, they do not pursue Relational Complementarity per se. However, in order to effectively manipulate the partner through coordination, they still have to perform their part of the relational model to some extent, even if while doing so they hide or simulate the true intentions behind their actions.

1.4. Theoretical Hypotheses

If Relational Complementarity is the goal of all coordinated interactions, then, at least two theoretical hypotheses can be raised. First, Relational Complementarity is inherently satisfying. In addition to goals ulterior to social coordination, Relational Complementarity is affectively rewarding in itself. If that is the case, then the goal of Relational Complementarity should be sufficient to energize and direct social behavior in the absence of other motives. Second, if social coordination offers opportunities for human beings to fulfill their basic needs, as suggested by many authors, then Relational Complementarity should, somehow, increase basic needs fulfillment.

The two hypotheses are addressed in the empirical chapters of this thesis. More specifically, in line with the first hypothesis, Chapter 3 presents four experiments testing the effects of priming the goal of Relational Complementarity on participants' effort to comply with a request by the experimenter. In Chapter 4, five experiments investigate the second hypothesis by testing whether people who engage in complementary interactions experience more sense of Control, sense of Belonging, Trust, and Positive Affect, than those who participate in non-complementary interactions.

Before the empirical chapters, Chapter 2 presents a detailed description and discussion of the concept of Relational Complementarity in light of philosophical and psychological accounts of joint action.

CHAPTER 2

Social Relating is the Pursuit of Relational Complementarity

The term 'social relationship' has been used in many different ways by social scientists in general and social psychologists in particular. It usually refers to something static that people 'have', are 'in' or 'get out of', a bond or association between two or more individuals that is more or less stable in time. In contrast, I use the term, 'to relate' or 'relating' to refer to something people *do with* someone else; an ongoing, dynamic and subjectively joint process individuals *actively participate in*, and by which social relationships are created, sustained, adjusted, redressed, and, sometimes ended.

As a pre-analytical definition, *to relate* is *to pursue an interaction pattern that is constituted by actions by each participant that are complementary according to a subjectively shared relational model.* In other words, when relating to each other, each participant intends his action to fit previous actions by the other(s) and/or to induce, invite, evoke, or pull fitting actions by the other(s), with the purpose of fulfilling a pattern in which the actions of each are perceived to be completed by the actions of the other(s) (A. Fiske & Rai, 2015). Two lovers kissing, someone commanding and another following, doing a favor for someone who later reciprocates, a business transaction between a seller and a buyer are examples of intuitive patterns of Relational Complementarity (RelComp) that people pursue when they relate.

To pursue RelComp implies that one's action presupposes an action by the other so that the action of each is only meaningful with reference to the expected or desired action of the other. In order to know which action by one agent presupposes and completes which action by the other agent, participants apply cognitive relational models, i.e., schemas or prototypes of social relations that inform, in the descriptive and prescriptive sense, which actions belong together on a specific cultural context (and which do not). Such models mediate social interactions by allowing each participant to perform his part, while recognizing previous actions by the other as the other's part, or presuming, expecting, wishing or hoping that the other will do her part appropriately.

Saying that to relate is to pursue RelComp, means that relating *is* motivated action towards RelComp. RelComp is a goal about a dynamic collective state that participants aim at, and which can only be achieved by means of each doing his part of the relational pattern.

Therefore, one participant is relating only if his or her actions are intended as part of a pattern of complementary actions. Although there are many coordinated human interactions in which the actions of participants do not presuppose complementary actions by the other, I will explain why those actions do not qualify as relating.

The term 'complementarity' has already been applied to dyadic interactions within distinct research traditions, yet with slightly different meanings than the one I use here (cf. Keisler, 1983, and Sadler, Ethier & Woody, 2011, for reviews on the use of the term *complementarity*). Both the interactional communication literature (e.g., Bateson, 1958; Berne, 1964; Goffman, 1967; Watzlawick, Beavin & Jackson, 1977) and the romantic relationships literature (e.g., Beach, Whitaker, Jones & Tesser, 2001; Pilkington, Tesser & Stephens, 1991) use the term c*omplementary* to characterize dissimilar behaviors between interactants (e.g., dominance pulling for submission,) and the term *symmetrical* to characterize behaviors that are similar (e.g., friendliness pulling for friendliness; hostility pulling for hostility). On the other hand, interpersonal theory uses *interpersonal complementarity* to describe the "ways in which the interactional behavior of pairs of people may fit together and influence each other" (Sadler, Ethier & Woody, 2011, p. 123). This latter definition encompasses both similarity and dissimilarity of behavior across partners, with similar behaviors defined as *corresponding*, and dissimilar as *reciprocal* (e.g., Keisler, 1983). In line with the latter definition, RelComp is not just about similarity (e.g., two people hugging each other) or dissimilarity (e.g., command and obedience) of behavior, but rather about actions by two or more individuals 'fitting together'.

The operationalization of interpersonal complementarity has been limited to individual differences in traits as measured by the interpersonal circumplex, characterized by the two dimensions of affiliation and dominance (e.g., Keisler, 1983). The underlying assumption is that whether actions fit together depends on qualities of individuals, and how the qualities of one actor relate to the qualities of another actor. Hence, someone with a highly dominant interpersonal style would easily achieve complementarity if he interacted with an individual with a submissive style, but not with another dominant person. In contrast, RelComp refers to qualities of social interactions and relationships, not traits of individuals. Building on the assumption that people structure their social relationships according to a limited set of basic models (A. Fiske, 1991), the fitting together of participants' actions is determined by the structure of the relationship itself or, to be more precise, by the relational model that they

apply to structure their interaction. For example, quite apart from personality traits some interactions are structured according to a role model of dominance or asymmetry, e.g., boss – subordinate, police officer – citizen, student – teacher. In such cases, the complementarity between dominance and submission, command and obedience, leading and following, protection and loyalty behaviors depends less on interpersonal styles than on common knowledge about relationships and the parts of each individual in them. Thus, RelComp is the quality of any interaction pattern that is constituted by actions of each participant that are mutually congruent and completing with reference to some relational model. I will use the term "relational pattern" to refer to interactions patterns with this quality.

I use the word "action" in a broad and relaxed sense to refer not only to overt behavior but also to the underlying mental states (A. Fiske & Rai, 2015), which each participant can assume to be experienced by the other or attribute to the observed behavior by the other. Thus, 'Complementarity' depicts the mutual correspondence of each participant's behaviors, intentions, beliefs, evaluations, judgments, or emotions with reference to a shared model. It "means that the [behaviors], thoughts, or affects of two or more participants are each oriented to the other person's [behaviors], thoughts, or affects in such a way that they make sense only in conjunction with each other" (A. Fiske & Haslam, 1996, p. 143).

RelComp is also the subjective experience by each participant that the actions of each (as well as corresponding mental states) are *perceived* to fit together in a way that is consistent with the relational model that he or she applies. Hence, it is possible that one participant perceives the actions of both to be mutually congruent according to the model she applies, while the other does not because he is using a different model, or implementing the same model differently. In such cases only the first participant experiences RelComp. In this sense, when I say that actions are complementary according to a relational model that is shared among participants I mean *subjectively* shared.

The term "Relational" refers not only to the intrinsic structures of relationships but also to the function of complementarity, which is to allow people to create, sustain, adjust and sometimes terminate social interactions and relationships. I propose that RelComp is the necessary condition for social coordination and for the construction of psychologically and culturally meaningful, predictable, and moral bonds between human beings. Relational behavior by one person is only understood and predictable with reference to previous or following actions by the other. Social bonds emerge to the extent that individuals succeed in

complementing one another; bonds are sustained as long as participants are able to keep on complementing one another or successfully repair previous failures to complement; and they terminate as the result of participants completing certain patterns (e.g., as the end of a contract or soccer game), not initiating new patterns (e.g., ceasing to invite a friend) or not performing one's part (e.g., not returning the money borrowed from someone). Moreover, to the extent that specific patterns of complementarity are reproduced by individuals across time, they become part of the cultural norms and moral prescriptions that sustain social relationships on a particular collectivity.

2.1. Four kinds of Relational Complementarity

In order to know which action by one presupposes and completes which action by the other, participants apply cognitive relational models – schemas of social relations that inform, in the descriptive and prescriptive sense, which actions belong together (and which do not) in a specific cultural context. I rely on Relational Models Theory (A. Fiske, 1991, 1992, 2004a) to illustrate the idea that virtually all kinds of complementary social interactions can be constituted by a finite set of universal models.

Relational Models Theory (RMT) claims that people in all cultures use a variety of implementations of only four models, or combinations thereof, to generate and coordinate most kinds of their social interactions: *Communal Sharing*, *Authority Ranking*, *Equality Matching* and *Market Pricing*. This theory is built upon the conceptual convergence in Max Weber's (1978) typology of forms of authority, Piaget's (1965) stages of moral development, Paul Ricoeur's (1967) account of the history of Christain theodicy, and other theoretical accounts and ethnographic descriptions[2] (for a detailed review see A. Fiske, 1991).

Relational models (RMs) are specialized faculties consisting of distinct forms of representation of social relations, which are used for integrating and interpreting experience of social interactions, as well as to guide one's own participation (A. Fiske, 1991, 1992; cf. also Jackendoff, 1991). In other words, RMs are cognitive representations, schemas, prototypes, or grammars that people use (usually without explicit cognition or lexicalization) to understand,

[2] Other converging theories include, for example, Durkheim's (1933) concepts of *mechanical* and *organic* solidarity; Tönies's (1988) *gemeinschaft* and *gesellschaft*; Clark and Mills' (1979) communal and exchange relationships; Polanyi's (1957) and Blau's (1964) basic modes of social exchange; or Etzioni's (1975) explanations of social order.

anticipate, plan, generate, and evaluate their social interactions (A. Fiske, 1991, 1992). In contrast with dimensional representation accounts (e.g., Wiggins, 1979; Wish, Deutsch, & Kaplan, 1976), empirical evidence shows that RMs are discrete implicit cognitive categories that people use to represent their social relationships (e.g., Haslam, 1994a; Haslam, 1994b; Haslam & A. Fiske, 1992; Haslam & A. Fiske, 1999), as well as to formulate their social intentions (A. Fiske & Haslam, 1997), and to think and remember about other people (A. Fiske, 1993; A. Fiske, 1995; A. Fiske, Haslam & S. Fiske, 1991). Each relational model has a distinct mathematical structure that defines which discrete relations and operations are meaningful; there are no intermediate structures between them (A. Fiske, 1991).

Communal Sharing (CS) relations are based on what people perceive that they have essentially in common. It takes the form of a nominal scale of measurement, which discriminates between individuals who belong to the same category or group and those who do not. In CS interaction participants treat one another as being equivalent or undifferentiated in some socially relevant aspect. Typical examples are lovers cuddling or dancing; mothers breast-feeding their babies; friends hugging, sharing food or wearing each other's clothes; soldiers drilling in synchrony; and team members wearing the same uniforms or adornments.

Authority Ranking (AR) is transitive and linearly ordered. It is based on asymmetrical differences between participants along relevant hierarchical dimensions, such as seniority, strength, size, competence, age, date of commissioning, caste, etc. AR resembles an ordinal scale which ranks social agents, such as bosses and employees, teachers and students, seniors and juniors, first and third world countries. The high-ranked are not only entitled to privileges but also have obligations to offer pastoral protection and guidance to the subordinates, whereas the low-ranked give their respect and loyalty to the superiors.

Equality Matching (EM) is about keeping even balance and is based on one-to-one correspondence and additive interval differences. It corresponds to an interval scale that allows participants to create and restore imbalances, of which they keep track by adding and subtracting each other's contributions. Typical examples are citizens having the right to one vote each, a couple taking turns doing the house chores, children dividing a cake in equal shares, coworkers evenly distributing tasks, colleagues reciprocating favors in-kind, competitors starting a match at the same time, or using lotteries to give people equal opportunities.

Market Pricing (MP) relations are based on proportionality. MP is homologous to a ratio scale that enables people to structure their transactions by using rates or ratios, such as prices, wages, interests, or taxes. MP is not only applied to market exchanges, but also to legal penalties which are proportional to the violation (e.g., fines or prison sentences), decisions based on cost-benefit analysis, or meritocratic equity.

Relational models mediate social interactions by allowing each participant to perform their respective parts while recognizing previous actions by the other as the other's part, or while presuming, expecting or wishing that the other will do her part in the future. When two spouses kiss they apply CS. Both spouses understand that the part of kissing by one presupposes the part of sharing one's body by the other, either through kissing back, leaning towards the kiss, hugging the kisser or appreciating the kiss in any other way. Likewise, when a police officer asks a driver for his driving license he is using AR. The officer treats the driver as a subordinate and the driver treats the officer as a superior. Hence, both the officer and the driver know that the part of commanding by the first presupposes the part of obeying by the second. When people apply EM they treat each other as equals. Therefore, the part of doing a favor to a colleague presupposes the colleague's part of the returning the favor in the future. Finally, when a seller and a buyer use MP to negotiate prices and service conditions, they presuppose that whatever one pays will be proportional to whatever the other provides.

Exactly what future action by the other is presupposed by one's action, and whether a previous action by the other is recognized as part of a pattern to be completed by one's action, is contingent on the RM that each participant applies to structure the interaction. For that reason, if someone applies CS with his friend by inviting him for a homemade dinner, she is presupposing an action by the friend that is different from him paying his share of the dinner, according to MP. If he were to offer to pay, she would be unlikely to recognize her friend's action as a 'part' that she is willing to complement with the MP-fitting action of selling the dinner.

At this point it should be clear that participants achieve RelComp whenever they apply the same RM in the same way to their interaction. Hence, if the two participants do not share the RM that each one is applying, they will not achieve RelComp, and will fail to coordinate. Consequently, their interaction may be experienced as awkward, uncomfortable, confusing, crazy, or offensive. Nonetheless, if relating is the pursuit of RelComp, then, insofar as one participant *intends* her action to be a part of a particular implementation of one RM, which

presupposes a fitting action by the other, she is relating, even if she and the partner subsequently fail to achieve complementarity.

Relational Models Theory also states that some kinds of interactions do not require that participants share one RM. In such *Null* interactions (A. Fiske, 1991, 1992) the action by one actor does not presuppose or make reference to a completing action by the other. The action is complete when it achieves its (non-relational) goal. In other words, the actor is not relating, according to my definition, because her actions are not aimed at RelComp with the other. Instead, she disregards the social intentions, values, or needs of the other, as well any shared structures, standards, or goals. As a consequence, she adjusts her actions to the other no more than she would if the other was an inanimate object. Typical examples are people avoiding collisions with each other while walking in the street; strangers sitting on the same bus, or using the same public restroom.

The four RMs are used to generate structured interactions in a wide variety of social domains. These domains include, but are not restricted to (for a complete account see A. Fiske, 1991, 1992): reciprocal exchange, distribution of resources, work, decision making, social influence, moral judgments, aggression, and conflict. Hence, RMs do not define a relationship people *are in*, but different ways people can coordinate in particular domains, even *within the same dyad*. One friend can sell (MP) a car to the other, they can evenly split (EM) the expenses of a party, follow the other's expert guidance and obey instructions in performing a statistical analysis (AR), and seek consensus (CS) about where to spend New Year's Eve. Thus, RMs correspond to four discrete structures people use to achieve RelComp within and across contexts and domains, within and across dyadic relationships. In this sense, virtually all kinds of RelComp correspond to one of the four RMs.

Finally, RMs are also combined and nested hierarchically to constitute complex systems of relationships, from interpersonal and intergroup relations to institutions and societies. Then, signing a job contract with a private company (MP) implies that one accepts the formal authority of one's boss (AR), follows the same market regulations as rival companies (EM), and pays taxes to the government (MP). In turn, getting married may lead, depending on cultural paradigms, to physical expressions of love (CS), taking turns in doing the house shores (EM), feeding (CS) and protecting (AR) one's children, or obeying to the patriarch or

matriarch (AR)[3]. The implication of such constellations of relationship is that successful patterns of RelComp sometimes presuppose and often lead to subsequent patterns, which makes relating an intrinsically dynamic process.

2.2. Social interactions are structured by universal models of relationships

In order to coordinate their actions and produce internally consistent, predictable, and meaningful interactions, people must know which actions fit together and which do not. Actions fit together when they are part of an organizing structure. A structure is a particular arrangement of the elements of something complex. Social relations are constituted by actions by different agents which are arranged according to an organizing pattern. Such pattern or structure specifies which actions belong together and which do not. For example, the actions of two spouses dancing the waltz go well together, but a police officer dancing the waltz and a driver showing him his driving license do not. Here, such organizing structures are conceptualized as Relational Models: specialized modules or faculties for representing, learning and producing social relations of equivalence (CS), linear ordering (AR), additive intervals (EM), or proportionality (MP).

Gestalt psychologists' (e.g., Wertheimer, 1923/2001) proposed that we perceive sensory stimuli (e.g., black dots in a row; musical notes; contracting facial muscles) as meaningful whole-configurations (e.g., a black line; a melody; a smiling face, respectively) and not as independent, unconnected parts. Such an idea was based on the assumption that pre-existing brain configurations accommodate sensory stimulation and imbue perception with a structure that the stimuli do not have in any necessary, intrinsic, or absolute sense (Hergenhahn, 2005). For example, they showed that visual perception is structured by a natural tendency to recognize configurations of continuity, proximity, symmetry, contrast, etcetera, between visual stimuli (e.g., Köhler, 1969). The same way as perceptual laws organize visual stimuli, RMs organize social interactions by discriminating, in a descriptive and prescriptive sense, which actions by different agents belong together to fulfill a whole pattern or "relational gestalt".

[3] For a more complete description about configurations of social relationships see Fiske's (2012) work on meta-relational models.

Conceiving relational acts as parts of a 'whole' pattern or relational gestalt implies that the actions by each participant are mutually completing. In other words, the actions by each are only complete and meaningful with reference to one another. For example, taking a bow is more than one person bending his back. Bending one's back can mean many things: than one is feeling sick, stretching, etc. A "true" bow requires a second person (real or imagined, when practicing or playing) towards whom the bow is performed. Furthermore, a bow is not the same as one person standing and another bending; not if the latter is bending to examine damage to the floor boards. Hence, a relational pattern cannot be reduced to the actions of each individual. It requires not only that each performs his action, but also that the actions by each interlock in a particular manner by presupposing one another. Therefore, when participants perform mutually completing or fitting actions they produce a whole that is something else than the sums of its parts (Koffka, 1935/1999, p.176).

2.2.1. The need for a cognitive coordination device specialized in social relations

To say that social relations are structured means that their constitutive actions are arranged according to an organizing model that specifies which actions belong together and which do not. Since most coordinated interactions unfold in the absence of any verbal communication between participants that explicitly indicates which actions complement one another, more basic processes must be recruited. The perceptual, cognitive and neural processes suggested, so far, to support social coordination and joint action explain how participants know (a) what others are attending to, (b) what others are doing, and (c) what others will or (d) should do on a given context (for reviews see Knoblich & Sebanz, 2006; Sebanz, Bekkering & Knoblich, 2006; Knoblich, Butterfill & Sebanz, 2011). However, these processes treat all actions as equal. They do not distinguish between purely individual actions and actions that are part of a relational pattern, and, therefore, afford complementary actions by other agents. For this reason, none of these processes explain which actions by the other one has to attend to, understand, and predict in order to realize a structured interaction.

Social agents are able to *know what others attend to* by following their gaze (Tomasello & Carpenter, 2007). This ability allows them to include whatever the other perceives into their own representation of the other's task (Knoblich, et al., 2011), and, consequently, to make predictions about future actions by the other, as well as to plan one's own actions

accordingly (e.g., Brennan, Chen, Dickinson, Neider, & Zelinsky, 2007)[4]. Social agents are able to *know what others are doing* because one action performed by another agent and a similar action performed by oneself share common codes or representations in the observer's action system (James, 1890; Prinz, 1997; Rizzolatti & Craighero, 2004). When an action by another agent is mapped onto the observer's own action repertoire it automatically activates the corresponding action representation that the observer uses to generate similar actions oneself. Such activation leads to the observer's immediate recognition of the goals underlying the observed action (Knoblich & Sebanz, 2006). Furthermore, social agents *know what other's will do* because such common representations also allow the observer to predict or simulate[5] how, when and where that action will unfold, as if he were the one performing it[6] (see also Sebanz & Knoblich, 2009). Action understanding and prediction is also supported by explicit or high-level processes such as mindreading. People explain and predict the actions of intelligent agents, including oneself, by ascribing mental states to them, such as intentions, beliefs, feelings, etc. (Carruthers, & Smith, 1996). They can do so by relying on folk psychological theories[7] (e.g., Gopnik & Wellman, 1992; Wimmer & Perner, 1983) or by explicitly using their own minds as models to apprehend their mental states[8] (e.g., Gordon, 1986). Finally, social agents know *what others should do* by cognitively representing, not only the features of the co-actor's action but also the stimulus condition under which that action is performed (Sebanz, Knoblich & Prinz, 2005). Hence, participants in an experiment can predict the co-actor's finger movements based on the appearance of the corresponding colored shape in a screen (e.g., Ramnani & Mial, 2004). These representations of stimulus-action links allows them to integrate the co-actor's responses, in a rather automatic way, into their own action plans, as if both actions were at their own command (Sebanz, et al., 2003, 2005).

[4] In this experiment, when co-actors know where each one is looking at, they spontaneously and without communicating divide a common search space in order to more quickly find an object.

[5] This process is often called implicit or low-level simulation, according to the *simulation theory* of Theory of Mind (cf. Goldman, 2012).

[6] The higher the similarity between the perceived action and the way oneself would do it, the higher the accuracy of one's predictions (Knoblich & Sebanz, 2006). For instance, pianists playing one part of a duet, synchronize better when they play together with a recording of themselves playing the other part than when the recording is performed by another pianist (Keller, Knoblich & Repp, 2007).

[7] According to the *theory theory* version of Theory of Mind (Gopnik & Wellman, 1992).

[8] This is high-level simulation, according to the *simulation theory* of Theory of Mind (cf. Goldman, 2012).

I argue that none of the processes described allow participants to know whether an action by the other is a part of a relational pattern, and which actions by oneself should follow in order to complete that pattern. In other words, knowing what the other is attending to, is doing, will do or should do is different from knowing whether his actions are relevant for social coordination. For example, the fact that one child sees an adult pointing at an object will not necessarily lead her to coordinate with the adult. In fact, the child tends to perform the complementary action of throwing the object into a basket only when she and the adult have previously engaged in a cleaning-up activity together (Liebal, Behne, Carpenter & Tomasello, 2009). This suggests that the child uses the relational pattern shared with the adult as a source of information about what aspects of the environment are relevant for coordination. Likewise, using one's own motor representations to understand the intentions underlying another agent's grasping movement towards a cup (Iacoboni, Molnar-Szakacs, Gallese, et al. 2005), or to predict the landing position of a dart thrown by oneself or other agents (Knoblich & Flach, 2001), is not informative of whether one can produce any following action, and if so, which one, that fits with the grasping or throwing actions by the other. The same argument applies to any inferences and predictions about other's actions accomplished through mental state ascription.

Furthermore, even the relatively automatic process of representing stimulus-action links governing the action of the other is insufficient to determine whether the action represented is relevant to be integrated into one's action plans. For example, several experiments (Sebanz, et al., 2003, 2005) have shown a joint Simon effect[9], suggesting that individuals tend to represent a co-actor's task and take it into account while performing their own task. However, another experiment showed that if participants perform the joint Simon task alongside a higher-ranked co-actor (a "researcher") who provides negative feedback about the agent's performance ("you have to respond quicker", "you are too slow"), the joint effect disappears completely, suggesting that whether the task of the other is taken into account by the agent depends on the relationship between them (Hommel, Colzato & Wildenberg, 2009). Indeed, if we assume that the participant and the co-actor applied an AR model to their

[9] When participants do a Simon task together with a co-actor (joint Simon task), each by responding to one stimulus, individual performance shows the same incompatibility effect (called the Simon effect) that is usually observed when participants perform the Simon task alone by responding to both stimuli. The evidence that the task of the co-actor is represented and integrated in the participant's action plans lies in the fact that there is no incompatibility effect when participants respond only to one stimulus, as in the joint condition but without a co-actor (Sebanz, et al., 2003, 2005).

interaction, then, the superior was entitled to monitor and guide the task of the subordinate and not the other way around. The results, then, show that the co-actor's action that was taken into account by the participant was the one required to constitute AR, i.e., the authority's instructions about one's performance and not the authority's task itself.

I want to highlight that none of the processes addressed so far in the literature to support joint action allows participants to detect and produce actions that fit together (are related) with the actions of other agents. I propose that such function is supported by Relational Models, which are specialized devices for learning and constituting universal, innate, socially meaningful and internally consistent configurations of actions[10]. Of course, RMs must be shared among participants so that their actions fit together accordingly. By specifying which actions belong together and which do not, and under the assumption that they are shared, RMs allow the agents to narrow down the infinite number of possible relational actions and intentions a human can have to only a few possibilities that are congruent with a given action by another agent. For instance, if someone holds out his hand to someone else when they

[10] Notice that some forms of coordinated actions have been explained by perception-action coupling processes. The agents' actions become entrained as results of them perceiving the same visual, auditory or haptic information. For example, audiences tend to applaud in unison (Néda, Ravasz, Brechte, et al., 2000), and participants sitting side by side in rocking chairs unintentionally synchronize their rocking frequencies when they visually attend to the co-actor's movements (Richardson, Marsh, Isenhower, Goodman, & Schmidt, 2007). On the other hand, common codes explain how individuals mimic their partner's behavior without being aware of doing so while observing the partner's gestures during a conversation (Chartrand & Bargh, 1999). Finally, some forms of coordination can also be explained in terms of two or more agents attending to a common object or environmental stimuli affording, i.e., offering the opportunity for (Gibson, 1977) simultaneous actions by each. For example, a two-seat bus bench affords two individuals' sitting next to each other.

However, neither common affordances, common codes nor common perceptual information determine whether the actions by each agent fit together in social-relational sense. If, for instance, one black passenger sits next to a white one, their actions fit together if the two-seat chair is in a contemporary western bus, but not if it is in an apartheid bus. In an apartheid bus the passengers would use CS to discriminate between those who belong to the category or group entitled to that particular seat and those who do not. Likewise, children synchronize their drumming with higher accuracy when they play with another person than with a mechanical device producing the same sound (Kirschner & Tomasello, 2009). This suggests that rhythmic entrainment cannot be explained by perceptual couplings alone. It seems that top-down processes inform who can synchronize with whom. In fact synchronous movements are one way to constitute CS relations by communicating who belongs to the same group (Fiske, 2004b; Schubert, Waldzus & Seibt, 2008). Hence, it is plausible to hypothesize that one is more likely to synchronize with those who are perceived to share the same essence (which is definitely not the case of a drumming device). Consistently, since imitation is another way to constitute CS (Schubert, et al., 2008) people tend to mimic outgroup members less (Bourgeois & Hess, 2008). Furthermore, individuals also inhibit mimicking the other when they engage in joint complementary tasks (Van Schie, Waterschoot, & Bekkering, 2008). Finally, participants performing a joint task with a confederate tend to display an expansive bodily posture when the partner's (a confederate) posture is submissive, and a submissive posture when the partner behaves dominantly (Tiedens & Fragale, 2003). Altogether, these findings suggest that the agents use cognitive models to determine whether mimicry, synchrony and the actions afforded by the environment are the responses that best fits the actions performed by the other.

meet, the number of possible following and fitting actions by the other are extremely restricted.

In addition, I will argue below that RMs also serve the functions of understanding, and monitoring the others' and one's own actions. Actions that fit together to constitute a relational pattern are only meaningful and complete with reference to one another. If RMs allow individuals to know what actions belong together, then, they also allow participants to know in advance what actions are missing to complete a relational pattern initiated by one of the agents. Hence, by sharing relational models participants can understand and predict the actions of others, as well as plan and generate their own actions in order to make themselves understandable and predictable to others. They can also use relational models to monitor and evaluate the actions of each by using that structure as reference.

2.2.2. Innate primitives and cultural paradigms for coordination

The claim that people use RMs to structure their interactions is built on the assumption that such models are "prior" to the interaction or are "brought" by the participant to the social interaction to make sense of the relational aspects of each other's actions. Technically, RMs are determined by the conjunction between *mods* and *preos* (A. Fiske, 2000, 2004a). Mods are cognitive, modular and innate proclivities for learning and producing a set of specialized structuring operations, corresponding to the four kinds of relations. The mods are indeterminate and, therefore, must be completed by preos to constitute a specific coordination device. Preos are the culturally transmitted and shared paradigms, specifying *with whom*, *how*, *when*, and *with regard to what* each mod operates to coordinate a given aspect of the social domain. Due to such indeterminacy a finite set of mods have the potential to combine with an infinite set of preos and, hence, to generate uncountable ways of social coordination across cultures (A. Fiske, 2000). Indeed, there is extensive evidence of the use of each RM in different (non-western) cultures, as for example, among the Moose in Burkina Faso (A. Fiske, 1990; see also A. Fiske, 2004b for a review).

On the one hand, participants bring the mods to the interaction, in the form of innate faculties for learning and producing social relationships, and use them to accommodate the actions of each agent, learn cultural paradigms and structure the interaction. In other words, the mods are *externalized* and not internalized during the interaction (A. Fiske, 1992). On the other hand, preos emerge during the interaction, and are learned, *internalized*, transmitted,

negotiated and changed across time within the same relationship and culture. For this reason, preos are also carried by the participant from one interaction to another in the form of cultural knowledge about social relations.

We can say that mods and preos correspond loosely to Hinde's (1976) distinction between abstract and concrete levels of social interactions, where the "concrete" real-life interactions are instantiations of "abstract" relationships (cf. Kauffman & Clément, 2014). In RMT, concrete interactions, as specified by preos, are instantiations of the innate specialized modules for learning and producing abstract relations of equivalence (CS), linear ordering (AR), additive intervals (EM) or proportionality (MP). Hence, RMs are the ontological primitives, foundational concepts and core principles of a "naïve sociology" that operates the relational parsing of the world by allowing individuals to understand one's own and the other's actions as instantiations of particular abstract types of relationships (Kauffman & Clément, 2014). Social agents use RMs to extract the abstract relational properties of ongoing interactions and to organize them into basic knowledge that allows them to understand social behavior in terms of underlying structures (cf. Kauffman & Clément, 2014). Hence, when interacting in a new culture, individuals do not need to learn from scratch how to relate in that culture and which relations are possible. What they need to learn are the preos specifying who is equivalent to whom and what is shared (for CS); how people are ranked and in which domains (for AR); what counts as equal interval units and what procedures are used for matching and balancing (for EM); what ratios are applied in that culture and to which attributes (for MP); and how are equivalence, rank, equality and proportionality marked and constituted, when and with whom. Once learned, knowledge about such preos will be used by participants in further interactions to produce actions that complement the actions of others.

Learning such preos is cognitively parsimonious because each mod is represented, communicated, constituted and culturally transmitted in conformation with a distinctive semiotic medium (A. Fiske, 2004b; A. Fiske & Schubert, 2012). Such media allow individuals in specific cultural contexts to intuitively understand and create behaviors and artifacts that successfully embody each RM (Schubert, Waldzus & Seibt, 2008). For instance, AR is constituted and communicated through *iconic social physics* (A. Fiske, 2004b; A. Fiske & Schubert, 2012). Participants rely on physical dimensions of time, space, magnitude and force to communicate and constitute rank. For example, 10 to 13 months-old infants use the agents' relative size to predict the outcome of a dominance contest between two agents with

conflicting goals (Thomsen, Frankenhuis, Ingold-Smith & Carey, 2011). Being bigger-smaller, stronger-weaker, earlier-later, in front-behind, more-fewer, above-below are cognitive universal representations of social asymmetries; and standing while someone bows, having larger offices, sitting in higher chairs are cultural realizations of such representations. Likewise, CS is culturally constituted and communicated through *consubstantial assimilation*, in which social equivalence is marked by the connection of one's material bodies (A. Fiske, 2004b; A. Fiske & Schubert, 2012). Hence, children and adults can rely on physical touch, synchronous movements or physical appearance (e.g., skin color, uniforms or adornments) as cues of equivalence (cf. A. Fiske, 2004b, and A. Fiske & Schubert, 2012, for the semiotic mediums of EM and MP).

Evidence that infants apply social rules that they were not explicitly taught to novel contexts and tasks supports the primitive and innate[11] nature of RMs (Thomsen & Carey, 2013; see also Tomasello, 2014, for a review). For instance, preverbal infants spontaneously help the experimenter (Warnecken & Tomasello, 2007), especially when primed with touch (Over & Carpenter, 2009; both helping and touching are instantiations of CS, cf. Schubert, Waldzus & Seibt, 2008); they also represent social dominance (an instantiation of AR) as a property of the relationship and not of the agents (Mascaro & Csibra, 2012; Thomsen, et al., 2011); they spontaneously take turns (an implementation of EM) with the experimenter as soon as the experimenter switches roles and in the absence of any instructions (Carpenter, Tomasello & Striano, 2005); and when dyads of 3 year-olds collaborate with equal contributions to get food, they, unlike chimpanzees, tend to evenly split (another implementation of EM) the reward among them, even if one child luckily obtains three times more food than the other (Warneken, Lohse, Melis & Tomasello, 2011).

2.2.3. Intrinsically motivating normative and moral structures

Each RM specifies one distinct kind of interaction pattern that is constituted by mutually completing actions. Once an action A that is part of a relational pattern takes place, the agents can expect that the complementary action B, that is necessary to complete the same pattern, either should have preceded A or will follow A (Kauffman & Clèment, 2015). In the case that

[11] For a discussion about the innateness of MP see Fiske (2004). Fiske hypothesis that MP is currently being "assimilated into cognitive and motivational proclivities: it is becoming a mod" (p.15).

action B does not occur the relational structure is not fulfilled and this creates a state of incompleteness in the relationship.

Some social psychologists influenced by Gestalt principles have suggested that people have a preference for states of coherence (Heider, 1946, 1958) or consistency (Festinger, 1954) between objects of cognition. Unbalance or dissonance causes a sense of discomfort or tension (Lewin, 1951) that people are motivated to reduce or avoid (Heider, 1946, 1958; Festinger, 1954). Similarly, I posit that an incomplete relational pattern creates a state of tension that the agents are motivated to avoid, escape, or reduce. Hence, RMs have motivational properties intrinsic to their structure. When participants recognize one agent's action as part of a RM, they expect, whish or hope that the complementary action will follow; and, therefore, they are motivated to invite, evoke, pull or perform the missing part in order to complete the RM.

Hence, RMs are also "deontic in the sense that [they enable individuals] to expect, in a relational-specific way, what *should* happen next" (Kauffman & Clèment, 2015, p. 164). Any action by one participant, when recognized as part of a RM, is not only an opportunity for what others *can do*, but also a constraint for what they *should do* next – *deontic affordance* (Kauffman & Clèment, 2015). Therefore, RMs have a motivational, normative, and moral character (see Rai & A. Fiske, 2011 for a RMT account of moral psychology). They convey joint goals (i.e. goals about a joint state), mutual expectations and obligations between participants (A. Fiske, 1991, 1992). Since RMs allow participants to detect any behavior that is inconsistent with, and therefore violates, the structure implied by the RM applied, they are also used as standards to monitor (and evaluate) social interactions, to repair and modulate relationships, including to regulate the punishment of transgressions. I will come back to this issue on section 3.4.

2.3. Relational Complementarity is a goal about a collective state

Relational Complementarity refers to a kind of pattern (earlier referred to as relational gestalt, relational pattern, or whole pattern) in social interactions that is constituted by actions by each participant that are mutually congruent and completing with reference to a subjectively shared RM. For this reason, the actions of each participant are parts of a "whole" that none of them can bring off alone. Cuddling is not possible unless there is someone to be cuddled. An order is not an order unless someone could obey. Taking turns on a task requires

that someone else takes a turn. Selling is pointless without someone who buys. RelComp is a phenomenon that occurs *between* individuals, to the extent that each does his part of the relational pattern. In this sense, RelComp is essentially interpersonal or collective.

Motivationally, to relate is to pursue RelComp. Therefore, when relating, people are pursuing one particular type of goal-state that does not refer to outcomes of individual actions (e.g., 'I want the report written'; or 'I want the car'), but to the *actual actions* by each participant and to *the particular fittings among them* (e.g., I want him to *follow* my *command* to write the report; or 'I want her *to sell* me the car for a reasonable *price*'). Hence, when relating, according to the current definition, the actions by each participant are not *means* to an end; instead, they are *parts* or *elements* inherent in the end itself. This, of course, does not exclude the coexistence of goals that are ulterior to the social interaction and which may even have motivated the interaction in the first place (e.g., the motivation to own a car or to get the report written). Such ulterior goals, however, are not what defines individual behavior as *relational*, since they could often be achieved by means other than RelComp (e.g., writing the report oneself, or stealing the car).

One implication of conceiving individual relational behavior as constitutive of part of a collective-state goal is that the fit between participants' actions to produce a whole pattern of RelComp is not accidental. Instead, the parts of each participant are derived from the intended collective-state in such way that they presuppose one another, and can only be intelligible, meaningful, and complete with reference to each other. For instance, one individual raising his right hand to the level of his waist is only understood or meant as a handshake if one presupposes that there is, will be, or should be someone else to shake his hand back. Such presupposition implies that the participant knows beforehand, and often implicitly, what a handshake is and what actions are necessary to constitute it. Hence, a pattern of RelComp is an end-state that each participant intuitively (pre)conceives and pursues by performing actions that can only be generated and terminated, as well as understood, anticipated, and evaluated with reference to presupposed fitting actions by the other.

If RelComp is a collective-state goal that is fulfilled by mutually corresponding actions by each participant, then, presupposing the corresponding action by the other is a necessary condition for one's own action to be performed. In other words, since each participant aims at an interaction pattern that is constituted by the parts of each, one participant is only motivated to perform her part (as *her part*) of the intended pattern *if* she believes, assumes, expects, or

wishes that the other is likely to do his part (when she is the initiator of the interaction); or *if* she understands and validates that the other did his part (when she is responding to a previous action by the other). There is no point in holding one's hand out to someone else if one knows that the other will definitely not shake one's hand back, or if one evaluates the other's attempt to shake one's hand as absolutely unacceptable, and much less if one does not understand that the other's hand movement is meant as part of a handshake.

Notice that conceiving RelComp as a goal-state does not mean that RelComp is a static phenomenon. Instead, if RelComp *is* action, then it is dynamic in at least two ways. First, the actions by each participant that constitute the relational pattern unfold through time. Such actions can last a few seconds, such as a handshake, or be extended for a life time. Take the example of a life debt where someone whose life was saved by another is obligated to dedicate his life to serve and protect his savior, or a mortgage that requires monthly payments for years. Second, as illustrated before, RMs are combined and nested hierarchically to constitute complex systems of relationships. Such constellations of relationship imply that the successful fulfillment of one relational pattern presupposes and often leads to subsequent patterns. Hence, when one participant aims at a collective-state goal, he usually also intends the subsequent relational patterns, and presupposes that the other will participate in them.

2.3.1. RelComp is "intentionally joint" joint action

The concept 'joint action' has been applied in the literature to different kinds of social coordination. According to minimalist views (Pacherie, 2011), actions qualify as joint when there is an outcome or effect that results from the actions of several agents (e.g., a bus filled with passengers; the noise of an audience applauding in unison); and when the actions producing the common effect are intentional[12] (e.g., I intend to use the bus, or I intend to applaud). Nevertheless, the two previous conditions are insufficient to differentiate between two agents acting/intending *separately* or in parallel, each to produce different tokens of the same action, versus acting/intending *together* to produce a common outcome that requires the other's participation. For example, what is the difference between John and Mary, each intending to sit on the same two seater bus bench (as two strangers who have similar seating

[12] This second requirement, from a philosophy of action perspective, rules out genuine actions from accidental behaviors or mere doings, since any behavior must be intentional in order to qualify as action (cf. Davidson, 1980).

preferences or face similar constraints on seat-availability), and John and Mary intending to sit *together* by sharing the same bus bench (as friends)? On both cases, John and Mary intend to sit *on the same bus bench* and the effect of both occupying the bench can only be achieved if the two of them occupy adjacent seats. However, doing something *with* someone else is different from several people doing the same thing *individually* or in parallel. Hence, maximalist views (e.g., Bratman, 1992; Gilbert, 2009; Tuomela & Miller, 1988; cf. Pacherie, 2011) attempt to conceptualize such difference by establishing that the agents must intend the joint activity 'as joint' and share such intentions with one another (Pacherie, 2011; Butterfill & Sebanz, 2011).

The necessary and sufficient conditions for two or more agents to share an intention to act jointly are still object of debate (for reviews, see Roth, 2010; Schweikard & Schmid, 2013; Tollefsen, 2015). Since my goal is to conceptualize 'to relate' and RelComp, rather than offering an account of joint action or shared intentions, I will not address such discussion. Instead, I want to highlight that proponents of such views generally agree that *intending the joint action together* cannot be reduced to the respective participants' separately intending their own action (Tollefsen, 2015). Tuomela and Miller (1988) propose that two or more agents jointly intend a joint action when they collectively accept that "we together will do X", and collectively commit to doing X jointly, by each expressing his we-intention to X (X corresponding to "our joint action"). An agent's *we-intention*[13] consists of his (a) intention to do his part of X (*as* his part of X)[14], (b) beliefs that others we-intend X, and (c) beliefs about mutual beliefs that all agents we-intend X and that the opportunities for achieving X will likely be available (see also Tuomela, 2005). According to Bratman (1992, 1993, 2009), sharing intentions about a joint action requires (a) intentions on the part of each participant in favor of the joint activity, J: "*I* intend *that we* J and *you* intend *that we* J"; (b) that each intends J because each believes that both intend J, and (c) that this is common knowledge

[13] For a different account on we-intentions see Searle (1990). Tuomela and Miller conceive we-intentions as ordinary individual intentions to perform one's part of the joint action, plus beliefs about favorable attitudes by the other. In contrast, Searle proposes that we-intentions are a special kind of mental state or psychological mode which cannot be reduced to ordinary I-intentions.

[14] Searle (1990) criticized Tuomela and Miller's (1988) definition for failing to distinguish cooperative joint action from parallel actions. However, doing one's part of X, as one's part of X, is different from doing one's part regardless of X. Tuomela (2006) clarifies this distinction by contrasting *we-mode* intentions (we will do X) to *I-mode* intentions (I will do X). In the we-mode, one agent aims at X, and intends to perform his part of X, where X can only be obtained by means of all agents' being committed as a group to doing their respective parts of X and mutually believing that each will do his part. In the I-mode, one agent aims at X and intends to act in order to X, where X can be obtained by means of the agent's commitment to perform his own action alone.

among them. Gilbert (2009) argues that intentions to act jointly are shared if, and only if, the participants are "jointly committed to intend as a body to do A" (p. 179). Acting as a body means that the agents emulate a single body, a plural subject, with one intention. A joint commitment implies mutual obligations to the joint action, and occurs when a decision to act together is created by each agent openly expressing his readiness to commit to the joint activity, so that such commitments are common knowledge among all agents. At least in Bratman's and Tuomela and Miller's accounts sharing intentions requires that participants include the beliefs of others in their own intentions. Such views have been criticized for demanding too much sophistication to allow children to engage in joint action (Tollefsen, 2005). Therefore, Butterfill (2011) proposes that some forms of joint action rely on shared goals instead of shared intentions. Hence, and along the same lines, a shared goal requires: (a) a single goal, G, towards which individual actions by two or more agents (a plural activity) are or will be directed; (b) expectations on the part of each agent that the others will perform actions directed to G, and (c) that G will occur as the common effect of all the agent's goal-directed actions.

The four accounts described agree that 'genuine' joint action must be intended as 'joint' by each individual. Be it in the form of a (we-) intention to *X together*, an intention that *we J*, a commitment to *do A as one body*, or the *single goal of a plural activity*, each participant pursues not the outcome of his own action taken singly, but the joint activity, relational pattern or collective state, as a 'whole'. In other words, what each participant aims at, intends, commits himself to or pursues is a goal the content of which is collective, in the sense that it requires congruent actions and intentions by two or more agents in order to be fulfilled. Consequently, individual actions, commitments or intentions to do one's part necessarily require that there is a collective activity to be fulfilled and from which individual contributions are derived. The four approaches also establish as condition for sharing intentions or goals that each participant makes assumptions or presuppositions, in the form of beliefs or expectations, about the other agent's intentions, commitments or goals to fulfill the same joint activity. Hence, in line with maximalist accounts, RelComp is one kind of joint action that is intentionally joint, because each participant aims at a collective-state goal or

relational pattern, by performing his part (intended as *his part*) and presupposing that the other will perform her part (intended as *her part*)[15].

Next I will clarify the use of the word "intention", the meaning of participant's "presupposing each other's actions", and what exactly *has to* be common knowledge among them, in my definition of relating and RelComp.

2.3.2. Relating is goal-directed/intentional action

Intentions have been conceived by philosophers as a combination of beliefs and desires (e.g., Davidson, 1980), or as a special kind of belief (Velleman, 1989). Bratman (1987) offers an influential conception of intentions as a distinct kind of mental state involving motivational commitment and commitment to norms of rationality, such as consistency between the agent's intentions, means-ends coherence and consistency with the agent's beliefs. Nevertheless, the words "intention" and "goal" are sometimes used interchangeably.

By 'intention' I mean goals, purposes, aims or end states that guide behavior; and I use 'intentional' or 'intended' to refer to motivated, purposeful or goal-directed action[16]. In my using of the word 'intention' has features of the goal construct in social psychology. More specifically, I think of intention as a psychological state of commitment to approach or avoid a cognitively represented entity, state, event or experience (cf. Elliot & Fryer's, 2009 definition of goal). Relational Complementarity is an experience or state that constitutes an

[15] At this point it is also important to make the distinction between RelComp and commonly studied forms of social coordination, such as entrainment, mimicry, or responding to common affordances. For instance, individuals can coordinate spontaneously by responding to common environmental affordances (e.g., people using the same public restroom at the same time; two strangers sitting in the same bus seat); they can fall into synchrony (or become entrained) with one another by perceiving the same visual, auditory or haptic information (e.g., applauding audiences clapping in unison, Néda, et al., 2000); or they can mimic each other's gestures, due to the automatic activation of their own action repertoire by a matching observed action (e.g., Chartand & Bargh, 1999). These three kinds of coordination may *emerge* (Knoblich, Butterfill & Sebanz, 2011) accidentally as a byproduct of more than one individual pursuing similar but non-collective or non-relational outcomes. They may not require goals about joint actions, shared intentions, not even that their actions are intentional (cf. Richardson, et al., 2007). Insofar as participants do not have the goal to synchronize *with one another*, sit *together* at the bus or mimic *one another's gestures*, such actions do not qualify as joint action from a maximalist view, nor as "relating" from my view.

[16] Notice that it is not my ambition to propose a formal definition of intention, nor to solve all the conceptual complexities associated to the concept (cf. Setiya, 2015). I limit myself to clarifying my use of the word, which I choose for convenience of speech and ease of thought.

object[17] of participant's intentions or goals; and *relating* is any action (or sequence thereof) that is generated with the intention, goal or commitment to approach (in the motivational sense) states of RelComp and avoid non-complementary states. In other words, actions count as relating if they are performed with the goal, intention, aim or purpose of achieving Relational Complementarity[18].

Saying that individuals have the intention, goal or are committed to achieve RelComp, implies that their intention is not only about their own action but also makes reference to action of the other. Formally, 'm*y* intending *our* (joint) action' violates the *own-action condition* and the *control condition* postulating, respectively, that one agent can only intend one's own action, and not what is beyond one's control (e.g., Sellars, 1980). However, I use the word 'intention' loosely to refer to goal-directed behavior, regardless of whether the agent expects that his actions alone will bring about the desired goal. For example, a farmer intends to produce wine in the next season, even though he knows that his intention will only be accomplished if certain weather conditions occur that are beyond his control. Similarly, a salesman's goal is to sell, but no sale is complete as result of the salesman's prospecting efforts and persuasiveness alone; the buyer must be willing and able to make the purchase. Tuomela (2005) deals with this problem by distinguishing between *aim-intentions* and *action-intentions*. In contrast to action-intentions, aim-intentions do not require that the agent believes that her action alone can bring about the desired result. Therefore, Tuomela conceives intentions to do one's part as action-intentions, and intentions to do X together (we-intentions) as aim-intentions. In other words, the agent can be aim-committed (or we-intend) to the joint activity, but action-committed (or intend) to do his own part of the joint activity (Tuomela, 2006). Notice that according to Tuomela and Miller's concept of we-intention, intentions to do one's part presuppose that others perform their parts[19]. Along these lines,

[17] By 'object' I mean what the intention is about or directed at (according to Searle's, 1983, definition of intentional object, p. 4) or to the regulatory focal point of the goal (in line with Elliot & Niesta's, 2009, definition of goal object).

[18] Conceiving relating as intentional/goal-directed action implies that the agents act with autonomy. This issue is crucial to distinguish between authentic and coerced complementary actions. In authentic cases participants are free to choose whether to perform their part, even if their main motivation is to avoid social reprimands. However, in the case of coercion, they do not have such freedom (e.g., slavery, rape, blackmail). Coercive interactions are degenerate cases of authentic relationships, but do not qualify as relating. They are asocial relations (Fiske, 1992).

[19] Likewise, Bratman (e.g., 2009) suggests that it is possible to intend something that is beyond one's own actions and control insofar as one can predict that the relevant remaining conditions will occur, or that the relevant others will act appropriately. Hence, Bratman shifts from action-referential intentions (intentions *to* J) to

"relating" is goal-directed/ intentional action in the sense that individuals aim at (we-intend, are committed to approach) a collective goal or relational pattern, by means of intending their own action as their part of the pattern (and presupposing the part of the other).

The word 'intention' has also been used by some motivation psychologists to distinguish conscious and deliberate from non-conscious goal-pursuit (e.g., Bargh & Huang, 2009), while others propose that the goal construct is restricted to conscious commitments (Elliot & Niesta, 2009). My use of 'intention' and 'goal' is more relaxed. I do not make a distinction between goals/intentions which are set and pursued through thoughtful deliberation and planning, and goals/intentions which one cannot lexicalize or consciously cognize. First, people can have the intention/goal to initiate or complete a relational pattern by performing their part now or in the future. Intentions for the future (Anscombe, 1963), future-directed intentions (Bratman, 1987; Pacherie, 2006), or long-term goals are formed and/or cognitively activated a certain amount of time before they are fulfilled; and their fulfillment demands deliberation, long-term planning and explicit commitment, as is the case of someone borrowing money from a friend with the intention to pay him back next month. On the other hand, intentions to act now, intentions in action (Anscombe, 1963), present-directed intentions (Bratman, 1987; Pacherie, 2006), or short-term goals do not imply temporal distance between their formation or cognitive activation and their fulfillment, as for example, giving money to a beggar at a traffic light, shaking someone's hand, or opening a door for someone whose hands are full. Such relational intentions/goals do not require planning and deliberation from the participant, and may or may not be consciously activated (e.g., Fitzsimons & Bargh, 2003). The idea that present-directed intentions can be nonconsciously activated is not new (Mele, 2009). There is evidence showing that both non-social (e.g., Bargh, Gollwitzer, Lee-Chai, et al., 2001) and social (e.g., Fitzsimons & Bargh, 2003) goals can be activated outside conscious awareness by social stimuli, and still operate in ways and produce results similar to consciously pursued goals, without individuals being able to report intentional goal-pursuit.

---

propositional intentions (intentions *that* we J, cf. Schweikard & Schmid, 2013). He argues that it is possible to conceive "intentions *that* we J" as ordinary intentions if further assumptions are made the about the intentions of the other agents to J together. I will argue below that (aligned) RMs allow participants to make such assumptions and predict that the others will do their part.

2.3.3. RelComp requires common knowledge about relationships (not minds)

Relational Complementarity is achieved when the actions of two or more participants fit together in a particular context. So far, no process has been suggested that allows the agents to know which actions belong together to produce an internally consistent relational pattern. I claim that the joint construction of this relational gestalt depends on RMs, which are coordination devices specialized in learning, detecting, and constituting social relations. Hence, actions by two or more agents fit together when they apply the same RM in the same way to their interaction. To that end, participants must share the RM they apply. By "share" I mean that each co-actor has his own cognitive representations of the joint activity which happen to be aligned with the representation of the other (Pezzulo, 2011). Holding aligned individual representations (Pezzulo, 2011) of the relational pattern, is sufficient for each participant to accurately understand, predict, monitor, or presuppose further actions by the other; to make one's actions understandable and predictable to the other; and, thus, to smoothly and effectively fulfill the collective state or relational pattern.

The advantage of aligned or shared RMs is that participants can understand and anticipate each other's actions without engaging in the cognitively demanding process of recursive mindreading (Bohl, 2015; Pezzulo, 2011). Theory of Mind assumes that people ascribe mental states to other agents in order to explain and predict their actions (Carruthers, & Smith, 1996). However, relying on mindreading to solve everyday coordination problems would require that each participant maintained separate models of their own and the other's minds and actions (Pezzulo, 2011). If this were the case, in order to predict and influence what the other will do one would have to take into account what the other thinks she will do, what the other thinks one thinks one will do, what the other thinks one thinks she will do, but also what the other will think about what one will do in the future, and so forth. From a computational point of view such recursive mindreading would be extremely demanding if not intractable (Bermúdez, 2003, Morton, 1996; Pezzulo, 2011).

On the other hand, by relying on RMs, participants are able to explain and predict each other's actions without having to know each other's minds (cf. Haslam & A. Fiske, 2004). Relational mods together with corresponding cultural preos are *grammars* for understanding and producing distinct kinds of relational patterns; they allow participants to identify which actions in specific contexts are elements of a relational pattern and which actions are missing to complete that pattern. Hence, representations of what actions fit together in particular

contexts is sufficient to enable participants to make explanations and predictions about what others are doing and will do. All they have to do is to assume that others share the same RMs, as we do when we assume that strangers give the same meaning to words and follow the same syntax as we do when we talk to them. By assuming aligned RMs by default individuals can easily make assumptions about each other's actions without using meta-representations of what is shared (Pezzulo, 2011), or even explicitly cognizing or being aware of what they are assuming. Hence, relying on RMs to make implicit top-down presuppositions about future actions by the other is something different and more parsimonious than making bottom-up predictions based on imputations of individual mental states. Unlike Tuomela and Miller's (1988) and Bratman's (1992) accounts of shared intentions, which require that participants have common knowledge about each other's beliefs about each other's intentions in favor of the joint action, RelComp requires only that participant have common knowledge about their relationship (cf. Haslam & A. Fiske, 2004). In other words, it requires that participants share common ground about the RM to be applied to their interaction. Sharing RMs allows participants to accurately presuppose the other's intentions, goals or commitments to do their part in favor of the joint pattern.

Notice that in some cases participants may make false assumptions about the alignment of their RMs (or may not make assumptions at all). In such cases where the RMs and respective implementations of each are not actually aligned participants may rely on other processes to align them in the course of the interaction. Although a thorough discussion of such processes is beyond the scope of this thesis I can briefly mention at least four ways by which such alignment can occur (for a proposal of how representations align in the course of an interaction see Pezzulo, 2011). First, participants can spontaneously switch between relational patterns (perhaps more easily within the same RM) which are equally acceptable in that particular context. For instance, one holds his hand out to shake his friend's hand but the other responds by opening his arms for a hug (both implementations of CS). Second, they can engage in explicit mindreading to understand and predict the actions of the other (Pezzulo, 2011). Bohl (2015) has suggested, that ascribing psychological states to others has the function of shaping relationships. Hence, mindreading may be especially useful when interactions fail, are uncertain or ambiguous, when participants want to change the current relationship, when they have concerns about third parties, or in morally ambiguous contexts where intentions are relevant for moral judgments (Bohl, 2015). Third, they can verbally negotiate (Pezzulo, 2011) the RM that they will apply; e.g., a couple deciding whether they

have separate – MP – or joint – CS – bank accounts, or two friends deciding whether they split the dinner bill 50/50 (EM), or one offers the dinner to the other (which is CS if it is not expected that the other reciprocates by offering the next dinner). Finally, when people apply different RMs it is possible that the actions by one are perceived as a transgression by the other (e.g., when one sees an alleged authority as an equal and therefore does not follow his orders). In such cases, punishment and retribution may also be used, as elements of the negotiation process, to motivate the other to adjust the RM applied and repair his transgression by performing his part.

2.3.4. Using relational models to presuppose the part of the other

Relational models allow participants to know each other's parts in the intended relational pattern. In addition, RMs have intrinsic motivational properties. When participants recognize an action performed by themselves or someone else as a part of a RM, they are motivated to complete the model by inviting, evoking, pulling or performing the missing parts. Hence, the motivational nature of RMs allows individuals to predict, expect, wish or hope that, once they perform their part, the others will perform theirs.

By assuming aligned RMs, each participant also makes assumptions about the other's intentions, goals or motivation to fulfill the relational pattern by performing her part. In other words, each participant also presupposes the commitment of the other to complete the RM. Participants' common knowledge or mutual assumptions about each other's commitments to act jointly is one requirement for intending jointly (Tuomela and Miller, 1988; Bratman, 1992; Gilbert, 2009). Such knowledge about each other's commitments can result, on the one hand, from participants' openly expressing their own commitments (Gilbert, 2009) or making explicit and public agreements (Tuomela, 2005) to performing the joint action together. For instance, one can invite the other to participate in a relational pattern, e.g., "will you marry me?", "will you sell me your iPhone for €50?"; or they can verbally negotiate the RM to be applied, e.g., "shall we split the dinner bill in equal shares (EM) or shall each pay for what he ate (MP)?". On the other hand, participants can also rely on implicit agreements or mutual beliefs about each other's commitments to the joint action (Tuomela, 2005). Along these lines, I propose that by applying RMs (with corresponding cultural paradigms), participants can immediately understand the relational intentions of each other and presuppose mutual commitments, in the absence of explicit communication. All they need is to assume that they share the same RM with the corresponding cultural paradigms specifying *when*, *how*, *with*

whom, and to what *aspects* that RM is applied. For example, when an individual enters into a supermarket or restaurant, he does not have to openly express his commitment to pay for the food he will take, nor does the shop assistant or waiter need to ask about commitments to pay. Insofar as participants assume that it is common knowledge that anyone (with whom) who enters a restaurant or supermarket (when) and orders a meal or takes any groceries (what aspects) has to pay for it (how), Market Pricing is implied and commitments to the model are presupposed.

It has been proposed that co-created joint commitments impose on each agent the obligation to act on a certain way (Tuomela, 2005; Gilbert, 2009). I suggest that when assuming aligned RMs and mutual commitments, participants also assume obligations the part of each to perform their part and entitlements to expect or demand that the others perform theirs. Relational models have a deontic nature (Kauffman & Clèment, 2015). They are relational standards because they allow participants to know that once one part of the relational pattern has taken place, the complementary parts *should* (in a relational sense) either follow or have preceded it. Hence, in addition to informing predictions, in the descriptive sense, RMs also motivate expectations in the normative and moral sense. For instance, if a boss gives an order to an employee concerning his work, or if she does a favor to a colleague, not only does she expect the employee to obey, and expect the colleague to reciprocate the favor, but she also feels entitled to demand that they do so. Insofar as the employee and the colleague share the same RM, they will feel obligated to obey and reciprocate. Failure on their side to do their part would likely be considered "wrong" by the boss, the employee, the colleague, and disinterested third parties, based on the models of AR and EM respectively. Thus, such deontic force motivates each agent to expect and perform the parts of each according to the relational standard applied.

Tuomela (2005) claims that the normative thickness of commitments varies depending on whether the agreements to act jointly result from explicit and public expressions of commitment to the joint action (thick normative contexts), or from participants' implicit, mutual beliefs about each other's commitments (weakly normative contexts). I suggest that the deontic force of each RM (or corresponding relational patterns) may also vary in strength depending on the cultural preos, which are reflected on social conventions about obligations and entitlements, regardless of whether agreements are explicit or implicit. Take the example of a couple who agreed to implement CS by verbally expressing their commitment to "dance

together next Saturday". If one of them, after their agreement, informs the other that he will not come dance after all, his opting out will be evaluated as stronger violation of their obligation to *dance together* if they committed to dance at a competition than to dance at a disco, just for fun. In fact, western social conventions about "dancing for fun at a disco" dictate that no one should be obliged to dance for fun.

On the other hand, and in contrast with Tuomela's claim, some implicit agreements, based on mutual assumptions about each other's commitments, may even entail stronger obligations than explicit, verbal agreements. As illustrated previously, the customer who picks up groceries at a supermarket is implicitly communicating his commitment to do his part of MP by paying for what he takes, just as much as the cashier is implicitly communicating his commitment to accept and demand payment. In this case, the customer would more likely be committed to paying than to going dancing, just for fun, despite his explicit commitment to dancing. Failing to go dancing for fun may be undesirable, but failing to pay for what one takes is stealing, and this is assumed to be common knowledge within most cultures. Hence, by relying on RMs (with corresponding cultural paradigms) as social *grammars*, participants can make accurate presuppositions about each other's commitments, and discriminate when explicit agreements are required in order to form a joint commitment to a relational pattern.

Furthermore, the deontic force of the RMs seems to be used to engage people in relational patterns to which they have absolutely no commitments and obligations, according to cultural paradigms and social conventions. For instance, someone ordering a drink for a stranger at a bar, a squeegee man whipping windshields of cars stopped in traffic, or a charitable volunteer distributing food and blankets to the homeless, are attempts to commit the other to a relational pattern by performing one's part. These are examples of "weakly" normative contexts, in which participant communicate their commitment to the joint activity by performing their part (Tuomela, 2005). The participant's assumption is that once one's part is out there the other will (at least with some probability) feel obligated to perform his or her part of having a drink together (CS), paying the squeegee man (MP), or expressing gratitude towards the charitable volunteer (CS). In such cases, the deontic nature of the models is sometimes strong enough to motivate people to perform their part even if they "think" they are "not entirely obligated" to do it; or to make them feel entitled to demand that the other complement their action when he fails. In fact, offering something to the other in order to

motivate compliance has been described under the more general label of "reciprocation" as one effective influence strategy (see Cialdini & Goldstein, 2004; Cialdini & Trost, 1998).

Although RMs allow participants to make assumptions about commitments, not all relational acts depend on such assumptions in order to qualify as *relating*. Notice that relating is any action directed at RelComp, regardless of whether intentions about the relational pattern are shared. Hence, we can distinguish between two kinds of relational acts: (a) explicitly inviting the other to participate in a relational pattern, and (b) initiating the relational pattern, as such, by performing one's part. The difference between the two is that in the first case none of the participants has performed one's part of the intended pattern, yet. For example, asking "will you marry me?", "can I borrow some money from you?", "would you sell me your iPhone for €50?" is not *actually* showing up at the altar, picking up the money or making the payment. (In "explicit invitations" we can also include explicit negotiations about the RM to be used). Both types of actions aim at constituting a pattern of RelComp. However, according to Kauffman and Clèment (2015), the RMs only allow participants to have deontic expectations about an action B of a relational pattern once action A has taken place, i.e., in the second case. Hence, leaving the other at the altar, not returning the borrowed money or taking the €50 without delivering the iPhone is likely to be perceived as a violation of a relational norm, moral standard or obligation (see Rai & A. Fiske, 2011). In contrast, the other's responding "No" to one's proposal, request for money or purchase offer is certainly undesirable, but unlikely to be considered as something the other *ought not to do*. When explicitly inviting the other to a relational pattern, the assumption is that the other is *not* obligated and, thus, *not* committed to it (yet), hence, the invitation for an explicit expression of commitment. Nevertheless, an invitation for a relational pattern still presupposes a response from the other person, and it is only meaningful and rational if it aims to evoke a response in favor of the intended pattern. Although, the man need not think she *should* (in a normative sense) accept the marriage proposal, he certainly whishes or hopes she will, for the sake of the intended CS pattern of marriage. Hence, by "presupposing" the action of the other I mean expecting, in the descriptive and normative sense, but also hoping or wishing, in a non-normative motivational sense, that the other will do her part.

As deontic structures, RMs also enable participants to monitor their own and the other's actions. By using RMs (with corresponding cultural paradigms) as standards, participants can understand the action by the other in terms of which actions he expects them to perform next,

as well as evaluate whether the other's action fits a particular relational structure. For instance, shaking the other's hand in the beginning of a job interview is part of a relational pattern that is acceptable and desirable, at least in the average western culture. However, attempts to hug or kiss the interviewer would likely be evaluated as inappropriate, awkward, and undesirable according to most western relational paradigms. If the other's action does not fit the relational structure(s) that one can possibly (in a cultural sense) apply to the interaction, it is *not* evaluated as an action to which one *ought to* respond by performing a corresponding action. Instead, it may be followed by attempts to discourage it in order to constitute alternative culturally valid patterns (e.g., by ignoring, criticizing, or punishing the misfitting action) and thereby repair the relationship. In this sense, RMs allow one to understand and evaluate whether the previous action by the other is part of a culturally congruent relational pattern, and to identify which following action by oneself is the other presupposing (expecting, hoping or whishing) by means of his own action.

2.3.5. The collective-state goal is the relational pattern (not its effects)

Some approaches define joint action in terms of the effects observed resulting from the actions of two or more agents (e.g., the noise of several cars in traffic), regardless of whether those effects are intended as joint. Relational Complementarity, on the other hand, is one specific type of intentional joint action, which is defined by participants' actions being mutually congruent according to a shared RM. If RelComp is constituted by the actions of each participant and the particular fit among them – the action gestalt – then RelComp is *action*, regardless of any outcomes that may result from its constitutive actions being performed. Therefore, it is crucial to distinguish between the relational acts, per se, and the asocial outcomes that are consequent to them. For example, John helps Peter to paint Peter's apartment. The freshly painted apartment results from the actions of both. However, what makes their joint activity relational is not that the apartment is painted or that each has the goal of painting it, but that they intentionally paint it together. The goal "painting together" is different in content from the goal of painting the whole apartment within a given time period. The content of the second goal is asocial, i.e., not relational, since, by definition, it does not specify congruent actions by two or more agents. The content of the first goal, however, is a pattern of RelComp, and, insofar as each agent performs his action, it can be fulfilled regardless of the second (i.e. they can paint together, but, for some reason, they may not finish the job).

This distinction introduces a nuance in my account, which is the possibility that participants intend to do fulfill a relational pattern and, at the same time, hope that the expected outcome of the relational pattern does not obtain. Kutz (2000) presents the example of a famous neurologist living in a country ruled by a dictator for whom he has secret political antipathies. The dictator has a stroke and the neurologist is called by the dictator's aides to administer the medication. Kutz argues that the neurologist may intend to do his part of saving the dictators' life without intending that the dictator survive. Likewise, a pacifist may take a job on a nuclear weapons plant because it is the only job available. He may intend to do his part of performing his task without intending to produce nuclear weapons. Kutz (2000) proposes the concept of participatory intentions as intentions to do one's part in group act. The author argues that participatory intentions are sufficient to define joint action, even in the absence of participants' intending the collective end of the group act. I argue that if we take as the collective end the relational pattern itself, then Kutz's specification does not apply to RelComp. Both the neurologist and the alienated pacifist intend the relational pattern of doing their jobs and getting paid for it according to MP. In addition, the neurologist may also intend to fulfill his ethical duty to provide medical care to those in need, according to CS. In any case, participants can intend and fulfill the relational pattern itself while hoping that RelComp is not (or regretting that it is) sufficient to produce the consequent undesirable asocial outcomes of the dictator's survival or the nuclear weapons production. Thus, the overall claim that RelComp is a collective goal refers to the motivational force of the RMs that structure, enable and are intrinsic to the process of relating, and not to the joint but asocial outcomes that are extrinsic to it.

2.4. Relational Complementarity is the subjective experience of fulfilling a relational pattern

So far, I have described RelComp from the conceptual third-person perspective of the scientist. However, RelComp is also phenomenological experience that must be understood from the perspective of the participant. On the one hand, RelComp is achieved when the participants' actions are mutually congruent according to a shared RM. On the other hand, RelComp is only *experienced* by each participant when the actions by all are *perceived* to fit together in a way that is consistent with the RM that each one applies. Relational models are not necessarily shared in the literal sense of participants explicitly agreeing about the RM to be applied and the relational pattern to be pursued. In the simplest cases, each participant

applies his own RM, and pursues a corresponding relational pattern, which he assumes is aligned with the relational pattern of the other. In such cases, RMs are, at best, only subjectively shared. Hence, RelComp is experienced with reference to the RM used and to relational pattern pursued by each participant. In other words, if RMs are cognitive structures, the locus of RelComp is also cognitive (cf. A. Fiske, 1991). In order to define whether one participant experiences RelComp one must look into the RM and corresponding relational pattern that he or she has in mind. It is, thus, possible that, in an interaction between two individuals, only one of them experiences RelComp. This means that RelComp is the subjective individual experience of a collective state, which may or may not be objectively shared among all participants involved.

2.4.1. The constitutive elements of relational patterns

People use RMs to detect and produce actions that fit together. Relational models result from the conjunction of innate specialized proclivities for learning and producing structuring operations, with cultural paradigms (A. Fiske, 2000, 2004a). The cultural paradigms (called preos) specify *how*, with *whom*, *when*, in regard to *what* aspects each proclivity (called mods) is implemented or externalized. Hence, the relational patterns, that constitute the collective-state goal for the interaction are, more precisely, cultural implementations of a mod. Hence, one participant will experience RelComp if her actions and the actions of the other participants fit together according to the specification of her intended relational pattern regarding how, who, when, and what. To be precise, it is not only the overt behavioral expressions of each participant that must fit together; the remaining elements concerning what aspects of their interaction, when they are interacting, and who they are must also be internally consistent according to the culturally specific relational pattern. For example, the elements of John and Mary (who) seeking consensus (how) about their upcoming baby's name (what) in front of close relatives at a family dinner (when) are internally consistent, at least within most western cultures. But John and Mary (who) seeking consensus (how) about their upcoming baby's name (what) in front of colleagues at a business meeting (when) are not internally consistent; it would in many cultures be seen as inappropriate, unprofessional behavior. John and Mary can seek consensus about the baby's name in another context other than the business meeting, or they can reach consensus at the business meeting about many issues other than their baby's name. The aspects (what), contexts (when), participants (who) and procedures (how) are mutually constraining within a specific culture. Once one of these

elements is recognized as part of cultural paradigm, it constrains the possibilities for the remaining elements, just as the business meeting constraints the variety of topics and decisions that can be discussed, how they can be discussed, and who can participate. When one of these elements is perceived as incongruent with the others, according to the cognitively represented relational pattern of one participant, that participant will not experience RelComp until the incongruent elements are repaired.

Notice that although in most contexts there is implicit consensus among people within the same culture about the RM to be applied, some contexts are relationally ambiguous because they involve elements of different RMs. For example, one employee meets his boss at a party of a common acquaintance. Party is a context (when) typical of CS, but boss is a co-actor (who) typical of AR. Such situations are disambiguated by participants recognizing and selecting the elements they perceive as the most relevant. In other words, whether the boss and the employee experience RelComp by doing something together at the party will depend on the social cues that each picks up as more relevant (party vs. boss) to constituting a relational pattern, and whether they manage to align their respective relational expectations. Suppose the boss applies a relational pattern of AR, which implies treating each other with formality and restraining their interaction to a polite, vague and short conversation, but the employee applies CS, by informally approaching the boss with friendly touches on the shoulder and talking about his personal life. It is possible that the employee experiences RelComp by naively interpreting the boss's silence as a sign of interest in the employee's talk, while the boss interprets the employee's approach as inappropriate and thus does not experience RelComp.

Furthermore, specifications about *how* each participant must act can be more or less general depending on the representational level of the action. If, in line with current neuroscientific models (e.g., Pacherie, 2008; Wolpert, Doya & Kawato, 2003), we consider that action is hierarchically organized into intentions (e.g., drinking water), action representations (e.g., grabbing a cup of water) and motor primitives (e.g., arm trajectory, hand grasp, speed of motion, etc., cf. Pezzulo, 2011), then relational patterns may specify different levels of the hierarchy from the more general response (intention: we will dance together at the competition vs. we will dance for fun), to an intermediate (action representation: we will dance the tango vs. salsa together, I will lead and she will follow) or to the more specific level (motor primitives: a specific choreography specifying, speed, trajectory and so forth of the

motions). Therefore, Complementarity is experienced to the extent that the intended relational pattern is completed on the representation level of the actions it specifies. The more specific the representation of one participant the more detailed the actual actions have to be for RelComp to be experienced. For example, a couple uses EM to implement turn taking for cleaning the apartment, but while the husband represents the part of each more generally, e.g., each cleans the apartment in their turn, the wife's representations is more specific, e.g., each cleans the apartment in their turn, by cleaning the dust from the furniture first and vacuuming the floor after. In such case, the husband will experience RelComp however the wife proceeds, as long as she cleans the apartment in her turn; but the wife will not experience it unless the husband cleans it in his turn *and* in the way her relational pattern specifies (e.g., by vacuuming, not sweeping, and after cleaning the furniture, not before).

2.4.2. RelComp is for overt behavior and psychological states

In my definition of RelComp the word "action" encompasses not only overt behavior, but also the corresponding covert psychological states, such as intentions, emotions, evaluations, beliefs and so forth (A. Fiske & Rai, 2015). Such use of the word may seem odd from a conceptual point of view. Although mentally solving arithmetic or creating a story can be considered "mental acts", other psychological states such as fears, beliefs, desires or hopes are not necessarily actions. Therefore, from a conceptual perspective it makes sense to distinguish "action" from "psychological states". However, from the practical perspective of the social actor facing everyday coordination problems, psychological states and overt behaviors are often perceived, by default, as inextricable parts of the each agent's actions, and hence, of the relational pattern.

By assuming that the co-actors share the same RM, each participant also makes assumptions about the other's corresponding intentions to fulfill the relational pattern by performing her part. Hence, when participants presuppose complementary actions by the other they may also presuppose the corresponding psychological states such as intentions, emotions, evaluations and so forth. In other words, each participant assumes not only that the others intend the same relational pattern as she does, but also that they understand, evaluate, desire, and – in a way – experience the same pattern that she does.

I have established before that action representations are hierarchically organized in different levels of description. In addition to observable behavioral expressions, intentions

may also be parts of one's action representations. If we assume that other mental states related to intentions, such as emotions, beliefs, etc., may also be represented as components of "action", then such psychological states are perceived, expected and expressed as inextricable parts of one agent's action, to which the other should respond, or which should be experienced in response to a previous action by the other. If such mental states are component of one's representation of the parts of each of the relational pattern, then they must be congruent with the remaining elements of the pattern for RelComp to be experienced. Otherwise, complementary behaviors accompanied with perceived non-complementary feelings, beliefs or intentions, will cause participants to experience awkwardness, discomfort, confusion, suspicion, anger or harm. In other words, all elements of a relational gestalt must belong together according to an organizing model in order for each participant to avoid the tension (Lewin, 1951), unbalance (Heider, 1946, 1958) or dissonance (Festinger, 1957) characteristic of non-complementary states.

Just as not all actions are relevant for social coordination (see section 2.1), not all psychological states are relevant for RelComp either. The actions that are relevant for coordination are those that are recognized as parts or qualities of relational patterns or RMs, and which, for that reason, make reference to complementary actions by another agent. Similarly, the relevant psychological states are those that make reference to the actions that are recognized as parts of the relational pattern (e.g., intending, enjoying, or believing that one should do one's part). If John agrees to help his friend Peter paint his apartment (according to CS), it is John's part to paint the best he can and it is Peter's part to paint together and accept John's contribution[20]. Hence, John's feelings of enjoyment for helping Peter and Peter's feelings of gratitude towards John make reference to the parts of each and are consistent with its overt performance. On the other hand, John's distaste for Peter's color choice, Peter's judgment that John's is too well dressed for painting, or the fact that John's finds painting boring, refer to actions that are associated, but peripheral to the relational pattern of CS. Perceiving how the other feels about the paint color, about one's outfit, or about the act of painting itself is unlikely to undermine one's experience of RelComp, as long as one assumes or perceives that the other enjoys helping and appreciates one's contribution. Furthermore, different RMs entail different psychological states. If, instead of asking a friend

[20] In the CS organization of work and contribution each does what one can without anyone keeping track of inputs. No one is assigned specific jobs or duties. Work is a collective responsibility (Fiske, 1991, 1992).

for help, Peter hires a professional painter, Mike, according to MP, then, Mike's part is to get the job done and Peter's part is to pay a proportional price. In this case, Peter's feelings of gratitude towards Mike may be irrelevant for Mike's experience of RelComp. Instead, it is crucial that Peter feels satisfied with the job and believes Mike deserves his payment.

Notice that including mental states as possible parts of the relational pattern does not imply that all relational patterns include mental states nor does it require that participants engage in mindreading. Some relational patterns may, in fact, not specify any particular mental state. When two drivers arrive at a roundabout they apply a relational pattern specifying that the first arriving at the roundabout has priority of the others (AR). RelComp is experienced as long as each one drives according to (perceived) precedence. Whatever mental states each driver experiences are not necessarily components of the represented relational pattern. On the other hand, when a romantic naïve teenager kisses and cuddles (CS) with her date at the prom, the intended relational pattern specifies not only that he kisses and cuddles back, but also that he "has feelings for her". In this case, the unexperienced teenager does not have to read the mind of her date in order to figure out whether he truly likes her. Instead, she may simply assume that kissing and cuddling (*how*) is something that only people who have feelings for each other (*who*) do; hence, if he kisses and cuddles with her, then he must have feelings for her. By assuming that they are both implementing the same RM in the same way, each participant makes default top-down-wise assumptions about each other's psychological states. Such subjective assumptions allow them to experience RelComp even if their emotions, intentions, or beliefs do not objectively complement one another.

Besides, some relational patterns overlap in their overt manifestations, such that the underlying relational intentions and emotions of each participant are crucial to distinguish between them. For example the physical act of sex, per se, is not sufficient to define the particular relational pattern that is being constituted. The underlying psychological states specify which RM is being implemented and with how much intensity. Depending on how he or she thinks, expects and feels about the sex, they may having casual sex (a less intense CS relation), initiating a romantic relationship (a more intense CS relation); engaging in prostitution (MP); taking revenge against a cheating partner (EM); or conforming to a wife's duty to satisfy her husband's desires (AR)[21]. In order to complement one another and

[21] For an account on relational motivations underlying rape see Fiske & Rai, 2015.

determine whether the actions by each agent actually fit together according to a shared relational pattern, each participant must understand what is going on between the two having sex by considering the psychological states of each other.

I have mentioned that, by default, people make assumptions about each other's mental states by assuming shared RMs. However, when interactions fail, are uncertain or ambiguous, due to misaligned RMs, people may also engage in mindreading (Bohl, 2015, section 3.3). Cultural experience informs participants that the same relational behavior can sometimes express different underlying psychological states, which, in turn correspond to different RMs. In fact, participants can even rely on such cultural knowledge to deliberately use ambiguous relational acts to hide their true intentions or suggest alternative RMs without violating the current one, e.g., a veiled bribery to a police officer, or flirting with a colleague (cf. Lee & Pinker, 2010). Cultural knowledge about the RMs allow participants to know that some behaviors can be parts of either one or another RM, but does not inform which particular RM is intended with that particular behavior. In such cases, explicit (Bohl, 2015) or implicit mindreading can be used to disambiguate behavior. For instance, after some disappointments the teenager loses innocence by learning that boys can kiss and cuddle for several reasons other than being in love. Thus, instead of making assumptions about their relationship she starts using her mindreading abilities to understand the true intentions and emotions behind their kissing and cuddling. To the extent that psychological states that she ascribes to the boy are congruent with the intended relational pattern, she experiences RelComp.

In summary, mental states are not necessarily constitutive element of relational patterns but in some cases they can be. Whenever they are represented as components of each agent's part, in addition to complementary over behaviors, participants also intend that each other's intentions, sentiments, evaluations, levels of commitment, beliefs, understandings (and whatever psychological states that are represented as elements of the parts of each) fit together. Therefore, Relational Complementarity is achieved to the extent that the psychological states of each participant during joint action are congruent with one another, in addition to corresponding overt behaviors. Otherwise, as in the example of sex, either participant may feel that each acted with disparate intentions, despite their intentions to act jointly. Realizing that the other did not experience the emotions, intentions, and evaluations that are congruent with one's own is enough for each participant to experience non-

complementarity. Then one feels awkward, confused, suspicious, hurt, disappointed, deceived, ashamed, guilty, insulted or angry about the interaction and the other.

2.4.3. Degrees of RelComp

The subjective experience of fulfilling a relational pattern depends on the pattern and constitutive actions that each participant represents. Since relational patterns are constituted by several elements it is possible that only some elements of each other's actions are congruent with the intended pattern. Hence, RelComp can be experience to a higher or lower degree of intensity depending on the extent to which the perceived elements of each agent's actions fit together. I will briefly illustrate this idea by addressing the external manifestations and mental states of the agents.

The lowest degree of RelComp is constituted by perceived non-complementary actions and non-complementary psychological states. The intermediate levels of RelComp are, at least two. The first consists of perceived fitting behaviors but incongruent psychological states. For example, John helps Peter paint his apartment but during the job he expresses annoyance at having to do it. Or two participants meet and each intends a pattern about greeting that may be defined by cheek kissing in the first case and handshaking in the second. The first surprises the second with two kisses on the cheek and the second complies although displaying signs of embarrassment. In the second case, the psychological states of participant's fit together, but their actions do not. Suppose John agreed to help Peter but he gets sick, goes to the hospital and tells Peter he cannot show up. Peter knows that although John did not show up, he intended to, and would have if he could. In such cases where people fail to complement, attributing intentions in favor of one's part may be crucial to judging (cf. Bohl, 2015) and responding to such failure. For instance, when an employee misses a deadline the boss may respond by consoling him if he believes the employee made a high effort, but reprimand him if he attributes failure to low effort (Struthers, Weiner, Allred, 1998).

In the highest degree of RelComp both overt behaviors and psychological states of participants complement are perceived to be mutually congruent. This level includes the cases where there is no objective RelComp, for instance, when people do not realize that they are applying different RMs with overlapping overt behaviors. For example, one person doing something for another can be a responsible implementation of AR, a friendly expression of

CS, or an exchange of favors according to EM. Since the immediate overt behavior of the two participants is the same, each one can experience RelComp if he assumes that the other is implementing the same RM and experiencing the corresponding psychological states. Of course, in the long run, participants may realize that they misunderstood what the other was doing and experience non-complementarity instead. This will generate retrospective embarrassment, hurt feelings, or anger. This level also includes the cases where only one participant experiences RelComp. For instance, a beneficiary applying CS may understand that he is being patronized or treated as inferior and, although accepting the benefit, he perceives the action of the benefactor as not entirely complementary to his, whereas the benefactor may perceive the beneficiary's acceptance as fully complementary to his dominance.

2.5. The scope of the current definition of relating

The current definition is comprehensive. First, it applies to different kinds of relationships. Whether someone asks a stranger or a friend for help, gives an order to a subordinate, does a favor to a colleague or pays for an online purchase, she is presupposing or inducing fitting actions by the other (e.g., that the other offers help, obeys the authority, reciprocates the favor, or ships the purchased product) that will complete the intended pattern of complementary actions. It is also appropriate for interactions with different degrees of complexity, be they a simple handshake or a 5-year business partnership between multiple players with complementary roles and responsibilities assigned to each across that period of time. It allows, as well, that people perceive themselves as relating to different types of 'entities', such as imaginary or supernatural beings (e.g., God or ghosts), deceased persons, a person who does not know the participant (e.g., celebrities), inanimate objects (e.g., an automobile or a computer), or animate non-human beings (e.g., a pet), as long as the participant believes or hopes that the other will complete his or her action with the complementary response.

Second, my definition pertains to different stages of a relationship. People initiate, maintain, adjust, and repair relationships by pursuing complementarity, and to the extent that they fail to achieve it with a specific participant they sometimes terminate relationship with them. Introducing oneself to a stranger at a party presupposes the complementary action by the stranger of introducing herself back. Most relationships are maintained to the extent that people actually succeed at jointly construing continuing patterns of complementarity in the

interactions or aspects that are most vital to the relationship; that is the case of lovers agreeing to move in together, and then to get married, and then to have children, and so forth. In ambiguous situations participants adjust their actions by negotiating the pattern of complementarity to be produced. Such negotiation is often implicit, for example, when Portuguese male and female strangers decide whether to greet each other with a handshake or a cheek kiss; but can also assume more explicit forms, for instance, two friends having dinner at a restaurant deciding who's turn is it to offer the dinner, or whether each pays for what he ate, or they split the bill 50:50. When one participant is accused of transgressing the relationship, that is usually because he or she failed (e.g., by cheating on the spouse, disobeying an authority, refusing to reciprocate a favor, taking a product without paying) to participate in a pattern of complementarity that was being pursued by the other. Therefore, attempts to repair the relationship often have the goal of persuading the other to continue to participate in the joint construction of patterns of complementarity with oneself. This may be done by apologizing, justifying, or compensating the other if one is the transgressor, or by confronting or punishing the other if one is the victim, or simply by addressing misunderstandings about what each party should do. Finally, some relationships dissolve as people naturally stop interacting over time. This is the case when people feel they do not have a relationship anymore because they have stopped relating in the sense of jointly construing complementary patterns. In order to prevent dissolution people use strategies (e.g., Christmas or birthday cards) to induce the other to participate in a complementary interaction (e.g., by sending a thank you note), thereby, sustaining the relationship. In other cases, people actually terminate their relationships by completing an interaction pattern. For example, the end of a job contract marks the completion of a pattern of complementary actions between the employer and the employee, and thus, the end of a relationship. Some relationships, however, terminate because participants fail to achieve complementarity on aspects critical to the relationship (e.g., an employee is fired because he did not accomplish what he was paid to; two lovers break up because one of them does not want to move in with the other).

2.6. Summary

When relating, people seek to fulfill patterns of complementary actions according to a subjectively shared model of the interaction. Individuals use such models as coordination devices informing which actions by each participant fit together in a particular situation. Across cultures, there are four basic relational models that people apply to structure their

interactions: Communal Sharing, Authority Ranking, Equality Matching and Market Pricing. These universal models are implemented in culturally specific ways as standards for understanding, evaluating, predicting, and monitoring the actions of others, as well as for planning, and generating one's own actions. Each relational model corresponds to one kind of Relational Complementarity and each specific implementation of a relational model corresponds to one pattern of relational complementarity.

Relational Complementarity is a goal about a collective state. The intended relational pattern pursued consists of one particular combination of actions by different individuals. In this sense, the relational pattern is a "whole" that cannot be accomplished by the actions of one single individual. At the same time the actions of each participant are only meaningful and complete with reference to that "whole". Hence, when pursuing Relational Complementarity each participant intends his action to be a part of a relational pattern, while presupposing, expecting, hoping or wishing that the other intends to perform her part of the same pattern. Because relational models are represented in the form of knowledge about relationships in specific cultural contexts, they allow individuals to make such assumptions without engaging in cognitively demanding processes of mindreading.

The Relational Complementarity goal is distinct in kind from goals attained by means of coordination. Relational Complementarity consists of fitting actions by participants. Therefore, it *is* action and it *is* coordination. Wanting the outcome of coordination (e.g., moving a piano) is different from wanting to coordinate.

Relational Complementarity is the subjective experience of fulfilling a relational pattern. Each participant applies his own cognitive representation of a relational pattern to the interaction. These representations include knowledge about the situation, the object of coordination, the overt behaviors of each participant, and may also include information about their corresponding psychological states, such as emotions, intentions and beliefs. Relational Complementarity is experienced insofar as the actions of all participants (and psychological states) are congruent with the relational pattern applied.

Often, due to culturally shared knowledge, the representations of participants are aligned, but it may be the case that each applies different representations. In such cases, an action misfit may occur in the form of misunderstandings, discomfort, or conflict. Since the representations of each may correspond or overlap to a greater or smaller degree, Relational Complementarity can also be experienced in different degrees.

CHAPTER 3

Does The Goal To Relationally Complement Motivate Effort In Social Interactions?

Several motives have been presented by social and personality psychologists to describe why human beings engage in coordinated social interactions. Most of these motives reflect goals that are ulterior to the relationship, in the sense that people use particular ways of relating as means to achieve them. For instance, it has been proposed that human beings have a universal motive to strive for control over the environment in order to obtain desired outcomes (Heckhausen, 2000; Heckhausen & Schulz, 1995; White, 1959). One way individuals can experience control is by cooperating with partners who have an influence over one's needs and desires (Kelley & Thibaut, 1978), or by achieving power and influence over other people (S. Fiske & Dépret, 1996; Veroff, 1957). Consistently, people also join social groups and engage in social interactions as means to achieve psychological outcomes, such as positive self-esteem (Oakes & Turner, 1980), distress relief (Schachter, 1959), or certainty about themselves and the environment (Hogg, 2000; Festinger, 1954). Such descriptions, however, reflect an instrumental approach to social interactions and neglect the class of incentives that reside within, rather than outside, the relationship.

In contrast, other proposals involve goals intrinsic to the relationship, in the sense that they are about the qualities of the relationship, as such. For example, the need to belong motivates human beings to maintain and establish a certain amount of frequent, pleasant interactions occurring within an enduring relationship of affective concern (Baumeister & Leary, 1995). The need to belong has similarities with the affiliation and intimacy motives, which are recurrent preferences for "establishing, maintaining, and restoring a positive affective relationship" (Atkinson, Heyns & Veroff, 1954, p. 406), and for warm and close interactions (McAdams & Constantian, 1983), respectively. Furthermore, the power motive is the desire to have impact on other people (McClelland, 1975). These motives are not about outcomes consequent to the interaction, but rater about *how* individuals interact. The needs for belonging, affiliation or intimacy, are about relating in a communal way, and the power motive is about relating in a hierarchical or dominant way. Despite describing motivational qualities of relationships, these approaches, are however focused on particular types of relations and, hence, neglect the incentives that are common to all types.

My proposal is that all kinds of relationships share a common essential motivational form. In the previous chapters I established that human interactions are structured according to four universal cognitive models of social relationships: Communal Sharing (CS), Authority Ranking (AR), Equality Matching (EM), and Market Pricing (MP; A. Fiske, 1991, 1992); and that Relational Complementarity (RelComp) is the requirement for any RM to be fulfilled, and, thus, for any social interaction to be successfully coordinated. Hence, all kinds of social coordination imply that individuals pursue RelComp. In other words, when socially relating each participant has the goal of fulfilling a pattern of RelComp with the partner.

RelComp can take the form of any specific implementation of a RM, i.e., a relational pattern. RMs and corresponding relational patterns are cognitive representations of knowledge about when, with whom, in respect to what aspects of the interaction, and how each participant proceeds on a specific cultural context. Each relational pattern informs in a descriptive and prescriptive sense which actions must be performed by each participant in that particular interaction, thereby energizing and directing the actions of each, and guiding evaluations of the partner's previous action and expectations about the partner's subsequent actions.

In this chapter I assume that RelComp is an intrinsically motivating quality of relational patterns. To say that RelComp is intrinsically motivating means that it is satisfying or rewarding, in the broad sense that people like it for its own sake (for a similarly broad use of reward see Vohs & Baumeister, 2008), either because it is pleasant—"feels good", or because it is the right thing to do—"feels right". On the other hand, non-complementarity is punitive, also in a broad sense, i.e., people do not like it, it is unpleasant, and feels wrong. Therefore, people are motivated to approach – move toward – complementary states, and to avoid – move away from – non-complementary ones (for a review on approach and avoidance motivations see Elliot & Covington, 2001). In this sense, all kinds of social interactions that offer an opportunity for achieving RelComp are intrinsically appealing, regardless of the individuals' ulterior motives, whereas the prospect of failing to fulfill a relational pattern is aversive.

To be sure, this does not mean that people necessarily find being alone aversive, and have a need to go out seeking for RelComp with someone. Instead, it means that when interacting with other people, for whatever reasons, people usually find that RelComp is a desirable and satisfying state, and feel confused, uncomfortable, upset, guilty, embarrassed, disappointed or

angry, when they or the partner, fail to complement each other's actions. For that reason, when RelComp is not immediately achieved, people usually make an effort to mutually adjust their actions until they fit; they communicate their intentions and efforts to complement the other, by presenting excuses or apologizing for their own failure; or they may engage in forms of punishment to make the other feel guilty, ashamed, or to enforce complementary behavior on the partner's side. In some cases, people are motivated to experience the satisfaction of RelComp, for instance, when someone offers a drink to a stranger at bar, when friends invite each other for dinner, when a new coming leader of a team makes a presentation to establish her leadership, when people network at conferences and business meetings. In other cases, avoiding the aversive states of non-complementarity may be the main motivation to complement. For that reason, people acquiesce to the demands of others, engage in uninteresting polite conversations, or perform their obligations towards others, such as paying their debts or reciprocating unpleasant favors. The fact that non-complementary states are aversive is often used by manipulators to make others feel guilty and embarrassed, and persuade them to act as they wish.

Building on this assumption, I propose that RelComp, i.e., the relational pattern that each participant applies to an interaction, is sufficient to energize and guide behavior in that interaction, regardless of ulterior motives. In other words, in the absence of other social rewards, the goal of RelComp should reflect on individuals' motivation to perform their part of the relational pattern. In this chapter, I present four studies investigating the hypothesis that, individuals pursuing the goal of RelComp in a social interaction spend more effort in performing their part, than those who do not.

In what follows I elaborate on the features that make RelComp a kind of goal distinct from other goals, and consider two automatic processes by which RelComp can be set as goal for the interaction: activation and discrepancy reduction.

3.1. The RelComp Goal is a Collective State of Affairs

Coordinated interactions allow individuals to achieve a great variety of goals that they cannot attain on their own. For example, people can gain information about the environment, gain support, validation and approval from others, or produce changes in the environment, e.g., moving a piano from one place to another (e.g., Jones & Thibaut, 1958). There, is however, a fundamental difference between such goals and RelComp. RelComp is a goal about a collective-state the ownership of which is subjectively shared.

Goals are mental representations of a "desirable future state of affairs one intends to attain through action" (Kruglanski, 1996, p. 600; see Bargh, Gollwitzer, & Oettingen, 2010, Elliot & Fryer, 2008, Fishbach & Ferguson, 2007, for reviews about the goal concept). The state of affairs is the content of the goal. Elliot and Fryer (2008) proposed the concept of goal object as the positively or negatively valenced "entity, event, experience, characteristic" the individual is motivated to approach or avoid (p. 245). The object or content of the RelComp goal is the particular fitting between the actions of two or more participants. Two implications follow. First, the RelComp goal is not consequent to coordinated action, as are many other goals for coordination (e.g., to move a piano). Instead, the RelComp goal *is* coordinated action, meaning that the actions of each participant are intrinsic to RelComp, i.e., intrinsic to the goal state. Second, the RelComp goal is not about an individual state of affairs, (e.g., I feel approved by the other; I gained information), but about a collective or joint state (e.g., we are doing something together). Hence, at the same time that the actions of each participant are intrinsic to the goal (i.e., RelComp), the goal itself is something else than the actions of each participant taken singly.

3.1.1. Shared Ownership of the RelComp Goal

The goal concept implies ownership over the goal and over the actions necessary to to attain it (Kruglanski, Chernikova, Rosenzweig, & Köpetz, 2014; see also Sellars, 1980, about the up to the agent'ness quality of an intention). In other words, a goal must be possessed by someone – it can be *my* goal, *your* goal, *our* goal, and so forth. And for a desirable end sate to become a goal for an agent, it must be attainable by means of the agent's own actions, since one can only commit to pursue a goal that one can attain by means of one's own actions. Interestingly, such requirement has generated discussions among philosophers of joint action and shared intentionality about how one agent can intend a joint activity, as joint, if he can only intend his own action. Some accounts propose that one agent can intend to do something together if he intends his' own part of a joint activity *and* presupposes that the others intend to do their part (Bratman, 2009; Tuomela, 2006). In line with these proposals, I have established that people usually assume that the relational pattern they apply to an interaction is shared by the other person. In other words, people assume that the partner wants (i.e., owns) the same relational pattern as they do, and such an assumption allows them to expect or hope that the other will do her part. Hence, the ownership of the RelComp goal is essentially shared (in the subjective sense) between two or more agents. At the same time, each agent owns only his

part/ action of the relational pattern, and neither agent owns the totality of the actions necessary for goal attainment.

Collectiveness of the state of affairs and shared ownership are two crucial aspects that distinguish RelComp from other social goals. Self-esteem, social approval, belonging, etcetera, are examples of goals about individual states of affairs, which are owned by a single person (e.g., my self-esteem, my feeling of approval and belonging). Such goals do not describe any particular fitting among the actions of different participants. To be sure, they cannot be attained by means of the agent's own actions alone, since they imply certain responses by the partner (i.e., the partner's sign of approval and inclusion). However, at best, these goals describe a state of affairs that consists of a desired response by the partner, rather than of fitting actions by the partner and the agent. In such cases, the agent's actions are means to an end (i.e., interpersonal strategies to earn the partner's approval), rather than part of the end itself. In addition, in order to pursue such goals, the individual does not have to assume that the partner shares the same goal (i.e., that the partner also wants to feel approved and to belong). To the extent that they are owned and describe actions by a single individual, social goals such as approval, belonging, self-esteem, and the like, reflect an individualist psychology. As far as these goals are concerned, social coordination is a means to an end. I propose that in addition to such goals, there is one class of goals that reflects a social-relational psychology: goals describing actions by two or more participants that fit together according to some cognitive model of the interaction, and which are assumed by each agent to be owned by all participants involved.

3.2. Activation of the Relational Complementarity Goal

How do participants set goals for the social interaction? How do humans select, from their immense relational repertoire and in real time, the relational patterns that are relevant for the interaction? Several approaches to goal setting and goal pursuit behavior have emphasized the role of conscious processes of deliberation and reflection (e.g., Fishbein & Ajzen, 1975; Gollwitzer, 1990; Locke, & Latham, 1990). However, the dynamic and fluid nature of human social interactions requires processes that are quicker and less effortful than conscious deliberations (Bargh, 1990). In fact, over the last decades research has shown that goals can also be activated and operate outside conscious awareness (Bargh, 1990; see Bargh, et al., 2010, Chartrand & Bargh, 2002, Custer & Aarts, 2005, Dijksterhuis, Chartrand & Aarts, 2007, for overviews).

It is widely accepted that goals are represented in memory as knowledge structures, similarly to other cognitive constructs, such as stereotypes or attitudes (Bargh, 1990; Kruglanski, 1996). Such conception implies that goals are not discrete representation units, but rather complex systems of interconnected memories related to a goal (Fishbach & Ferguson, 2007). These memories include not only the desirable outcomes, but also the habitual plans often employed to attain them, and the features of the situations in which the goals are often pursued (Bargh, 1990; Aarts and Dijksterhuis, 2000). Hence, goal-related memories, which are not equally accessible across situations, can be automatically activated by any environmental stimulus – including the actions of other people – that is part of the goal representation and, thus, linked to its remaining elements. For example, asking participants to sit on a professor's chair (vs. guest's chair) in a professor's office while performing a task activates power related goals (Chen, Lee-Chai & Bargh, 2001); and asking participants to read about a man picking up women at a bar activates the goal to have casual sex (Aarts, Gollwitzer & Hassin, 2004). This way, goals are automatically activated and guide behavior on specific situations, outside the individuals' awareness. This assertion has been extensively supported by studies demonstrating that goals can be activated through priming manipulations – without participants' being aware of the stimulus, or of the stimulus' association with the goal – and operate similarly to consciously set goals (e.g., Aarts and Dijksterhuis, 2000; Bargh, Gollwitzer, Lee-Chai, Barndollar & Trötschel, 2001; Chartrand & Bargh, 1996; Fitzsimons, & Bargh, 2003).

Building on principles of goal representation and activation, I propose that RMs are cognitively represented in the form of relational patterns. The relational patterns are systems of knowledge about the *when*, *what*, with *whom* and *how* of the cultural paradigms for implementation of RMs. More specifically, the representation of each relational pattern includes information about the context (when) in which certain aspects of the interaction (what) are coordinated, with whom they are coordinated, and how each party should proceed. Conceptualizing relational patterns as knowledge structures, implies that all it takes for a relational pattern to become activated is the perception of an element of the pattern in the environment. Such element can be a task requiring coordination (e.g., obtaining food), a situational feature (e.g., a restaurant), the other person (e.g., the waiter), or an action by the other (e.g., presenting the bill). Whenever an element of a relational pattern – in which one is involved as participant – is perceived in the situation, the remaining elements are activated by association, and the relational pattern as a whole becomes active to guide behavior, usually

automatically (e.g., paying for the dinner). An activated relational pattern is automatically set as a goal for the interaction, which is equivalent to saying that when a relational pattern is activated RelComp is set as goal.

3.3. The Role of Discrepancies in the Pursuit of Relational Complementarity

The mental activation of a goal representation is not sufficient to motivate behavior; the activated representation has to be desirable at the moment of activation. In other words, there has to be a discrepancy between current state and goal-state (e.g., Custer & Aarts, 2005, 2007; Veltkamp, Aarts & Custers, 2009). For example, when the goal to make money was activated through priming, primed participants were quicker to and spent more effort in pursuing an opportunity to make money than non-primed participants, but only when their need for money was high (Aarts, Gollwitzer & Hassin, 2004, Study 1). For participants with low need for money, the goal activation did not affect behavior. In another study, participants primed with the goal of drinking consumed more fluid than non-primed participants, but only under conditions of fluid deprivation. At the same time, participants under condition of fluid deprivation consumed more fluid than non-deprived participants; and this effect was more pronounced when the goal of drinking was activated through priming (Veltkamp, Aarts & Custers, 2008). Hence, it seems that activation and discrepancies are both necessary for a certain goal-representation to actually be adopted as a goal for action.

The motivational role of discrepancies in relationships has been emphasized by several theories of social psychology (Robins & Boldero, 2003). For example, Interdependence theory postulates that whether an individual remains or leaves the relationship is determined by perceived discrepancies of the current outcomes of the relationship with the comparison levels used to evaluate the relationship and the alternative relationships available (Thibaut & Kelley, 1959). Similarly, Fletcher and Simpson (1999) proposed that individuals are motivated to reduce discrepancies between their ideal standards and the current partner and relationship. And Relational Discrepancy Theory describes how the roles within a relationship and perceptions of trust and intimacy are affected by perceived discrepancies between one's self-aspects and the self-aspects of the partner (Robins & Boldero, 2003).

What kind of discrepancies is relevant for the RelComp goal? In the current analysis, the goal state is the complete relational pattern, and the current state is the absence of RelComp on an interaction in which the person is a participant. Whenever a relational pattern is initiated

by one participant performing his part, a state of discrepancy emerges and is experienced by both participants, provided that the representations of the relational pattern of each are aligned. In that case, both the respondent and the initiator are motivated to reduce the discrepancy. The motivated behavior by the respondent will usually take the form of him performing his part, whereas the motivation of the initiator will be reflected on him monitoring the complementary action by the partner, or on actions that aim to evoke, pull, and enforce the complementary action by the other.

Therefore, a powerful way to engage people in coordination is by initiating a relational pattern that requires their part to be completed. This is the principle underlying the reciprocation strategy of influence that consists of offering something to the other to make him feel obligated to do something in return (see Cialdini & Goldstein, 2004; Cialdini & Trost, 1998). Notice, however, as condition for discrepancy perception, the action of the other must be represented as a part of a relational pattern, i.e., it must be coherent with the relational pattern that one would apply to that same situation. If this condition is not met, the individual may not understand what the other is doing or evaluate the intended pattern as inappropriate or wrong, and hence, undesirable.

3.4. Overview of Studies 1 to 4

The four studies presented in this chapter investigated whether the activation of the goal of RelComp would reflect on participants' motivation to perform their part of the interaction with the experimenter during an experimental session. It was assumed that participants would interact with the experimenter in a framework of Authority Ranking (AR) and Market Pricing (MP) combined. The AR model would consist of the experimenter instructing the participant, and the participant following the instructions of the experimenter. The MP model would consist of the experimenter rewarding the participant for taking part in the experiment, and the participant performing the tasks corresponding to the reward. Hence, coordination between the experimenter and the participant would require the implementation of a pattern of RelComp according to AR and MP. RelComp would be achieved when the experimenter and the participant performed their respective parts of the relational pattern.

It was also reasoned that, if the experimenter performed his part before the participant performed his, a discrepancy would emerge, thus making the goal of RelComp desirable. Building on the principles above stated the discrepancy would motivate participants if the goal of RelComp for that interaction was made accessible. Holding discrepancy constant,

differences in motivation should be observed by manipulating the accessibility of RelComp. In particular, I expected that participants primed with RelComp would have the goal more strongly activated, and that this should reflect on higher motivation to do their part.

One hallmark of motivated behavior is the effort spent to attain the desired goal (Martin & Tesser, 2009; Wright, 1996; Wright & Brehm, 1989). The higher the value of a goal, the higher the effort expended in pursuing it. Effort was measured indirectly through performance on a digit-letter substitution test. Substitution tests consist in matching particular signs to other signs within a given period of time (Van der Elst, van Boxtel, van Breukelen, & Jolles, 2006). Previous studies have shown that substitution tests are sensitive to different levels of motivation. For example, individuals with high achievement motivation perform better on substitution tests that than those with low achievement motivation (e.g., French, 1955; Patten & White, 1977).

Given that the substitution test was one of the tasks that each participant had to complete *as his part* of the relational pattern with the experimenter in order to achieve RelComp, it was predicted that participants primed with RelComp would make more effort, and thus, perform better on the substitution test, than those in the control condition.

Notice that since RelComp is a collective state of affairs, the RelComp goal is distinct from the goal "to perform well" or to succeed at the task. Performing the task well corresponds to the participant's part of the relational pattern. For the RelComp goal to be attained, it is necessary that both the participant *and* the experimenter perform well the parts of each. When motivated by the RelComp goal, the participant intends her performance as her part of the relational pattern, while validating or assuming that the experimenter performed or will perform his part. In other words, when pursuing the RelComp goal, individual performance is contingent on evaluations and assumptions about the actions of the partner. On the other hand, the goal "to perform well" at the task is contingent on the participant's own action only. The participant intends his performance to be as good as possible, regardless of previous or subsequent actions by the experimenter. Since the RelComp goal-state is something else than the single action by each participant, there is no conceptual overlap between the RelComp goal and performing well.

Furthermore, performance alone can be explained by other motivations, such as doing something well, i.e., achievement or mastery (e.g., French, 1955; McClelland, Koestner & Weinberger, 1989; Patten & White, 1977). However, provided that there is no semantic or

behavioral overlap between the priming stimulus and the achievement concept, any differences between participants primed with RelComp and those in the control condition cannot be explained by a motive to perform well, as such, but, instead, by a motive to achieve RelComp by performing well one's part of the relational pattern.

3.5. Study 1

3.5.1. Methods

3.5.1.1. Participants

Sixty-eight students at a public university institute in Lisbon (64 undergraduate students, 59 of them Psychology students, 77% female, 89.5% Portuguese nationals) with ages between 17 and 34 (M_{age} = 19.46, *SD* = 3.07) took part in this study. Sixty-one participants were recruited as part of a requirement for a class on Social Psychology and earned 0.5 credits for participating in a 30-minute experiment. The remaining seven participants were recruited by convenience on campus and offered a 5€ voucher.

Two participants were excluded from the data analyses, leaving a final sample of N = 66. The first participant showed awareness of the purpose of the study, by explicitly relating the manipulation task to the dependent measure. The second participant carried a physical disability that affected his hand writing, thus decreasing his speed in the dependent measure.

3.5.1.2. Design

Participants were randomly assigned to one of three conditions: the priming condition vs. two control conditions. In the priming condition participants rated the degree of Complementarity of sentences describing social interactions. In the first control condition participants counted the number of verbs on sentences describing social interactions, whereas in the second control condition participants counted the number of verbs on sentences describing individuals performing non-social activities. The sentences used in the priming and in the first control condition were the same in order to make sure that any effects on performance were not due to the priming of social content as such. We anticipated that the content of the sentences in the first control condition could spontaneously activate the concept of relational complementarity, but as participants had the task of counting the verbs in the sentences they should rather inhibit such social content in order to be able to focus on

grammar. The second control condition was used in order to have a base line condition in which the idea of social complementarity would not be activated. Dependent variable was the motivation for relational complementarity, which was measured as effort in a subsequent task.

3.5.1.3. Materials

All materials described below were written and presented to participants in Portuguese language.

Manipulation. This task was performed on a computer in the form of an online questionnaire developed with Qualtrics.com software. Participants rated phrases according to a given instruction.

In the priming condition participants read the following instruction:

> "When we relate, we combine our actions with the actions of the other person, in a way that the actions of both are complementary.
>
> For example, when Manuel and José meet, Manuel reaches his hand out to José. José reaches his hand out to Manuel and they shake hands."

Next, participants were asked to read 20 phrases, and to rate whether each phrase described a complementary or non-complementary social interaction, using a 7-point Likert scale (1 - *not at all complementary*; 7 - *highly complementary*). Each phrase consisted of two sentences, like the ones in the instructions, describing one interaction between two individuals according to one of the four relational models. The phrases were developed so that the four models were represented, including the superior and subordinate roles of AR (see Appendix A). Ten phrases were complementary (e.g., *Joana felt ill and called her husband. The husband immediately interrupted his work and took Joana to the hospital.*), and ten phrases were non- complementary (e.g., *The teacher told the student to stop texting during the class. The student turned around and continued texting,*). Furthermore, in order to avoid confounding RelComp with the general valence of the interaction, half the phrases described pleasant complementary (e.g., *The waiter came and left the bill on the table. The customer paid the bill and tipped the waiter for the good service*) and non-complementary interactions (e.g., *The three books Carla ordered online arrived on time. The online bookshop charged her credit card for one book only.*), whereas the other half described unpleasant complementary

(e.g., *The police officer saw António using the cellphone while driving and ordered him to stop the car. António stopped the car immediately at the roadside*) and non-complementary interactions (e.g., *José's old and sick father urinated in his trouser and called José for help. José in the other room continued watching the football game*).

In the first control condition participants read the instruction:

> "Read the following sentences and indicate the number of verbs in each phrase, using the scale below (1 = 1 verb; 7 = 7 verbs).
>
> For example: "When Manuel and José meet, Manuel reaches his hand out to José. José reaches his hand out to Manuel and they shake hands (Number of verbs = 4)."

Next, they read the same 20 phrases as in the priming condition and rated the number of verbs on each one.

In the second control condition participants read an instruction similar to the first control condition, except that an example of a phrase describing a non-social activity was given: "He does laundry only when it is sunny. This way he uses natural heat to dry the laundry (Number of verbs = 4)." In addition, the sentences to be rated were different from the other two conditions in the sense that they described individuals performing non-social activities (see Appendix B).

Measures. The ratings of the phrases of the manipulation task by the participants in the control condition was used to assess whether participants were able to differentiate between the complementary and non-complementary sentences. This measure was used to validate the goal priming.

Effort was measured indirectly through performance on a digit-letter substitution test. In this study the pencil-paper materials used by Van der Elst and colleagues (2006) were used. Participants were given a key which consisted of digits from 1 to 9, and each digit was paired with a different letter. Their task was to replace a sequence of 135 randomized letters by the correct digit as indicated by the key. The dependent measure was the number of correct substitutions made in 60 seconds (see Appendix C)

After performing the substitution test, for exploratory reasons, participants used a 7-point Likert scale to rate their level of agreement (1 – strongly disagree, 2 – disagree, 3 – partially disagree, 4 – neither agree nor disagree, 5 – partially agree, 6 – agree, 7 – strongly agree) with eight sentences measuring: self-reported motivation ("I felt motivated to have a good performance in this task"), effort ("I didn't put much effort in this task"; "I did not feel the need to put effort in this task in order to earn the 0.5 credit"), concern with evaluation by the experimenter ("I tried to get a positive appraisal of my performance"; "The expectations of the experimenter did not influence my performance"), sense of duty (" In a way I felt it was my duty to put effort in this task") and intended affect ("I would feel bad if I did not give my best in this task"; "I thought I would feel good if I tried hard in this task")[22].

Instruments. A chronometer was used to count the 60 seconds of the substitution task, and a room divider separated the desk where the participant performed the priming task from the desk where the experimenter waited until the priming task was completed.

3.5.1.4. Procedure

Each participant took part on an individual session in the presence of the experimenter. As a cover story, participants were told that the purpose of the study was to pre-test materials that were going to be used in future studies.

The participant was guided to a desk with a computer. Then the participant read a form containing information about the voluntary nature of their participation, the confidentiality and anonymity of responses, and the contact of the main investigator for further questions. After giving informed consent participants initiated an online questionnaire, which was introduced by the experimenter as the first task. The questionnaire included a first page

[22] In order to control for effects of covariates that could be expected theoretically to influence performance participants were asked to complete an online questionnaire 48 hours before the lab session. Since substitution tests have been shown to be sensitive to different levels of achievement motivation (e.g., French, 1955; Patten & White, 1977) the questionnaire included a Portuguese translation of the Achievement Motive Scale (Lang & Fries, 2006). The achievement motive scale consists of 5 items assessing hope for success (e.g., *I am appealed by situations allowing me to test my abilities*; α=.84) and 5 items measuring fear of failure (e.g., *I am afraid of failing in somewhat difficult situations, when a lot depends on me;* α = .90). The remaining scales included in the online questionnaire were the Portuguese translations of the Need to Belong scale (Leary, Kelly, Cottrell, & Schreindorfer, 2013; 10 items, e.g., *I want other people to accept me*, α=.77); 3 items measuring the sense of belonging (adapted from Twenge, Baumeister, DeWall et al., 2007, e.g., *There are many people who care about me*; α = .59); and the Brief Fear of Negative evaluation Scale (Leary, 1983; 12 items, e.g., *If I know someone is judging me, it has little effect on me*; α = .89). Only 56% of participants complete these measures, and for this reason they were not included in the analysis.

collecting demographic information about the participant, a second page with the manipulation task, and a third page instructing the participant to call and wait for the experimenter. The online questionnaire was programmed to randomly assign participants to either the priming or one of the two control conditions.

In order to make sure that the experimenter was blind to the experimental condition, a room divider was placed between the desk of the participant and the desk where the experimenter waited, so that they could not see each other, nor could the experimenter see the computer screen of the participant during the task. The experimenter provided all the necessary instructions to the participant while the first page was still in the screen. Specifically, the experimenter requested the participant to interrupt the task and call him as soon the participant saw the instruction in the third screen. Next, before the participant completed de first page the experimenter left to his desk behind the room divider and returned only after the third page appeared and the participant called him. This way, the experimenter could not see the content of the second screen containing the manipulation task.

When participants called the experimenter, he moved from behind the room divider and guided the participant to another desk where he/she would perform the substitution task. Before introducing the participant to the task the experimenter said the following, depending on whether participants were rewarded with 0.5 credit or a 5€ voucher:

> Before I forget… your participation in this study allows you to get 0.5 credits. I have already introduced the credits in the system. I ask you to check it afterwards because the system has been making some errors, ok? (To the credit participants)/ Before I forget… your participation in this study allows you to get a 5€ voucher and here it is (and gave voucher to the participant).
>
> As you know your participation is voluntary and you can quit at any time, but the idea is that the *0.5 credit/ voucher* corresponds to three tasks in total within a 25 minute-time period. You have already finished one task and there are two left.

Such instruction had the goal to make the Market Pricing aspect of the relationship between the experimenter and the participant explicit: the participant performed three tasks in exchange for a reward given by the experimenter. It also intended to communicate to the participants that the experimenter had already done his part of such relational pattern by offering the reward in advance, and that the relational pattern would be completed as soon as

the participant completed the three tasks. We assumed such procedure would make the opportunity to relationally complement explicit to the participants in the three conditions of the manipulation. Moreover, the fact that the reward was offered before the dependent measure also made clear that the amount of the reward was not contingent on task performance. This was important in order to be able to attribute effort to a motivation that was not related to the reward as such, but entirely directed towards relational complementarity.

After such instruction the experimenter introduced the substitution task to participants by saying: "This task is a test of cognitive abilities that the research team was validating for the Portuguese population. We are not interested in your individual performance, but only in people's performance in general. However, we will only be able to use your data if they reflect your actual abilities." We used such instruction to assure the participant that we were not concerned with individual performance but rather with the overall quality of the data. After the experimenter explained the task, the participant substituted the first 10 letters as practice to make sure he or she understood the instructions. After practice, when the participant indicated that he/she was ready to initiate the test the experimenter instructed the participant to do as many substitutions as possible in 60sec on the count to three. The participant performed the substitution task while the experimenter counted the time using a chronometer.

After 60 seconds the experimenter stopped the participant and asked him/her to fill in a paper and pencil questionnaire including the eight exploratory items described before. After that, the participant was guided back to the desk with the computer and completed the third and last task, which was another online questionnaire. This questionnaire was a pretest of materials for an unrelated study.

As part of the debriefing the experimenter used a funneled debriefing protocol adapted from Chartrand & Bargh (1996) to probe for awareness or suspicion concerning the priming task. Specifically we asked participants (a) what they thought was the purpose of the study, (b) whether they felt the tasks were related in any way, and in what way they were related, (c) whether they though anything they did on one task affected what they did on a following task, (d) whether they noticed anything unusual about the sentences in the first task, (e) whether they noticed anything unusual about the instructions given to the second task, (f) what were they trying to do during the substitution and whether they had any strategy in mind, and (g) what factors influenced their performance in the second task. One participant showed

awareness of the purpose of the study explicitly relating the first to the second task, and was excluded from the analysis. The remaining participants did not show any suspicion that the first task was related to the substitution task.

3.5.2. Results

3.5.2.1. Validation of the Goal Priming

As expected participants in the priming condition rated pairs of sentences describing complementary interactions closer to the extreme point of the scale corresponding to high complementarity (= 7), M = 6.03, SD = 1.11, than those describing non-complementary interactions, M = 1.96, SD = 0.47, $F(1, 20) = 207.44$, $p < .001$, $\eta_p^2 = .91$. Thus, it can be assumed that participants in the priming condition understood the concept of relational complementarity.

3.5.2.2. Main Analysis

I predicted that participants in the priming condition would achieve more correct substitutions in the digit-letter test compared to participants in the two control conditions. I tested this prediction by running a one-way ANOVA. Performance differed significantly across conditions, $F(2, 63) = 4.89$, $p = .011$, $\eta_p^2 = .13$. A Helmert contrast comparing the priming with the two control conditions together supported the hypothesis. Participants in the priming condition (n = 21) did more correct substitutions in 60 sec., M = 41.14, SD = 4.39, than those in the first (n = 21), M = 36.57, SD = 5.02, and second (n = 24), M = 38.75, SD = 4.79, control conditions together, $t(63) = 2.78$, $p = .007$ (2-tailed), $\eta^2 = .03$. According to pairwise comparisons with Bonferroni correction, differences were statistically significant between the priming condition and the first control condition ($p = .008$), but not between the priming and the second control condition ($p = .288$). Performance also did not differ significantly between the two control conditions ($p = .387$).

3.5.2.3. Analysis with Covariates

Since age and sex are the most important predictors of performance in the digit-letter substitution task (Van der Elst, et al., 2006), I conducted an ANCOVA with sex and age as covariates, to explore whether controlling for these predictors would affect the performance differences between groups. Non-significant interactions of the manipulation with age, $F(2, 56) = 0.66$, $p = .520$, and sex, $F(2, 56) = 1.27$, $p = .290$, showed that homogeneity of the

regression slopes could be assumed. A model testing the main effects of priming, age and sex, without interactions, showed that the effect of the manipulation was statistically significant, $F(2, 60) = 3.66$, $p = .032$, $\eta_p^2 = .11$, the effect of age was marginal, $F(2, 60) = 3.62$, $p = .062$, and the effects of sex was not significant, $F(2, 60) = 0.70$, $p = .407$. The Helmert contrast revealed that performance in the priming condition was significantly higher than in the two control conditions $t(60) = 2.55$, $p = .013$ (2-tailed), $\eta^2 = .02$. Pairwise comparisons with Bonferroni correction showed that differences were statistically significant between the priming condition and the first control condition ($p = .029$), but not between the priming condition and the second control condition ($p = .260$). There were no significant differences between the two control conditions ($p = .864$).

3.5.2.4. Exploratory Analyses

A multivariate GLM with the manipulation as predictor was conducted on the eight exploratory items presented to participants after the substitution task. There were no significant differences on any of the items. This suggests that participants may have not been aware of their effort and motivation in the substitution task and, thus, could not reported it. Such lack of awareness speaks in favor of a successful non-conscious activation of the RelComp goal during the priming task.

3.5.3. Discussion

Our hypothesis was supported. Participants primed with RelComp performed better than control participants in the substitution test. These results suggest that the priming of RelComp increased participant's motivation to perform their part to the relational pattern with the experimenter. In addition, the fact that both the priming and first control groups rated the same phrases in the first task, showed that the performance differences were not due to reading about social relationships in general, but instead, to thinking about RelComp in particular. This effect was not affected when sex and age were controlled as covariates.

Unexpectedly, mean differences were not large enough to reach statistical significance when the priming condition was compared with the second control condition. This might be related with the content of the sentences read by these participants. At least five phrases in the second control condition were about individuals succeeding in doing something (e.g., *Whenever she has free time, Ana likes to solve problems of mathematics and logic*, see also items 5, 11, 12 and 20). Therefore, it is possible that achievement was primed and reflected on

participant's performance (e.g., French, 1955; McClelland, et al., 1989; Patten & White, 1977).

One objection to the success of the manipulation and its effect on motivation for RelComp is that performance in the priming condition might have been affected by the instructions to the task, rather than by the task itself. The instructions were: "When we relate, we combine our actions with the actions of the other person, in a way that the actions of both are complementary". Such sentence implies that RelComp is normative, in the descriptive sense of what people often do (e.g., Cialdini, Demaine, & Sagarin, 2006). Hence, it is possible that the priming motivated participant to achieve RelComp, not because it is motivating in its own right, but because it was perceived as normative. The implication of this explanation is that similar results would have been observed had any other norm consistent with performing well in the second task been activated.

A second alternative explanation to the results observed is related to the processes by which the priming affected behavior. There at least two processes alternative to goal activation that may take place when a construct is primed. One of such processes is the activation of a particular behavior, instead of a goal (Bargh, et al., 2001). For example, when primed with rudeness participants are more likely to interrupt subsequent conversations, than when primed with politeness (Bargh, Chen & Burrows, 1996). Since there were no descriptions of performance related behaviors among the stimulus phrases, this process seems an unlikely explanation of participants' performance in the substitution task. On the other hand, a second process is the activation of a semantic category, which influences the perception of subsequent ambiguous events (Bargh, et al., 2001; Förster, Liberman & Friedman, 2007). In fact, the concept of Relational Complementarity, being explicitly described in the instructions to the priming task (but not to the control task), may have activated a semantic category and influenced participants' perceptions of the experimenter's instructions to the substitution task, or of the overall significance of the task.

One way to rule out the effects of behavioral and semantic perceptual representations from the effects of goal representations has been demonstrated by Bargh and colleagues (2001). The authors showed that perceptual representations produce the same behavioral effects as goal representations immediately after the priming, but not five minutes later. Presumably, whereas perceptual representations decrease in activation over time, motivational tendencies increase in strength until the goal is attained (Bargh, et al., 2001). However, such

procedure would not rule out the possibility that the priming activated the goal to do what is normative, i.e., to act in complementarity.

Alternatively, study 2 employed a different version of the manipulation task where RelComp was not explicitly described. This way the priming of a norm and the activation of a semantic category were avoided.

3.6. Study 2

3.6.1. Methods

3.6.1.1. Participants

Seventy-nine Portuguese participants (81% female, 98.7% undergraduate students, 94.8% Portuguese nationals) with ages between 18 and 52 (M_{age} = 22.01 *SD* = 4.21) took part in this study. Fifty-one students at a public university institute in Lisbon were recruited as part of a requirement for a class in Social Psychology and earned 0.5 credit for participating in an experiment for 30 minutes. The remaining participants were recruited by e-mail two weeks later and were offered one 5€ voucher.

Three participants were excluded from the data analyses, leaving a final sample of N = 76. The first had done the same substitution task before in another study and her performance (= 61 correct substitutions) was approximately four standard deviations above the mean (*M* = 40.29, *SD* = 5.89) and one standard deviation above the second highest performer (= 55 correct substitutions). The second excluded participant had participated in Study 1; and the third was hearing impaired, and reported to be unable to concentrate on the task for being afraid that she would not listen the 60s alarm bell of the chronometer.

3.6.1.2. Design, Materials and Procedure

Participants were randomly assigned to one of two conditions (priming of RelComp vs. control). The procedures, materials and dependent measures were identical to Study 1 with three exceptions: the manipulation and the exploratory items that were presented after the substitution task were modified; and the third task, which consisted of an online questionnaire for an unrelated study was removed.

Manipulation. The manipulation was similar to Study 1. However, the instruction avoided any mentioning of relational complementarity in order to rule out normative effects. In the priming condition participants read:

> We present two categories of phrases.
> The first category is designated Category A:
> When Manuel and José meet, Manuel reaches his hand out to José. José reaches his hand out to Peter and they shake hands."
> "Ana asked the teacher to guide her in preparing for the exam. The teacher scheduled a meeting with Ana to support her."
> The second category is designated Category B
> "Artur is moving to a new apartment and asks Raul to help him carrying his stuff. On the moving day Raul goes to the beach in the morning and comes back by night."
> "Claudia provided a cleaning service to Rute for the cost of 80€. Rute never paid for the service."

Then participants were asked to read the 20 phrases used in Study 1, and to rate on a 7-point Likert scale whether each phrase fitted better into category A or category B (Category A = 1; Category B = 7).

In the priming condition, the phrases were organized as disposed above, so that category A contained complementary phrases and category B non-complementary phrases.

In the control condition the materials and instructions were the same as in the priming condition except that the four phrases from the two categories were combined differently. Category A was illustrated with the two phrases containing male subjects, the first of which was complementary ("When Manuel and José meet, Manuel reaches his hand out to José. José reaches his hand out to Peter and they shake hands"), whereas the second was non-complementary ("Artur is moving to a new apartment and asks Raul to help him carrying his stuff. On the moving day Raul goes to the beach in the morning and comes back by night"): On the other hand, category B had the two sentences with female characters: one complementary ("Ana asked the teacher to guide her in preparing for the exam. The teacher scheduled a meeting with Ana to support her") and one non-complementary ("Claudia provided a cleaning service to Rute for the cost of 80€. Rute never paid for the service"). This way the two categories had one complementary and one non-complementary sentence each

and the difference between them was in the sex of the characters, rather than in the type of interaction.

We expected that participants would attempt to understand the difference between category A and category B while reading the example sentences, and that they would identify relational complementarity as the distinctive characteristic in the priming condition and gender of the actors as the distinctive characteristic in the control condition. Thus, when trying to categorize the pairs of sentences in the subsequent task, participants in the priming condition would search for relational complementarity or non-complementarity, whereas participants in the control condition would search for male or female gender.

The phrases were presented to participants in a different order than in Study 1 and the gender of the characters in some sentences were modified to increase the number of female phrases relatively to Study 1 (see Appendix D).

Exploratory items. After the substitution task the participants filled in an online questionnaire with exploratory purposes. The questionnaire had two parts. In the first part participants indicated on a 7-point Likert scale how much effort they made in the substitution task (1 – no effort, 4 – moderate effort; 7 – maximum effort) and how much (1 – did not influence, 4 – influenced moderately, 7 – influenced completely) each of seven causes influenced their effort (e.g., *to meet the expectations of the experimenter*; see Appendix E for a full description of the items). In the second part participants used a 7-point Likert scale (1 – strongly disagree, 2 – disagree, 3 – partially disagree, 4 – neither agree nor disagree, 5 – partially agree, 6 – agree, 7 – strongly agree) to rated their level of agreement with sixteen items. One item addressed how much they liked the experimenter; five items measured the participants' trust in the experimenter (e.g., *I trust the experimenter completely*, $\alpha = .61$), five items assessed participants' sense of control in the interaction with the experimenter (e.g., *I had control over the outcomes of our interaction*, $\alpha = .61$), and five items about the participant' sense of belonging in the relationship with the experimenter (e.g., *I felt rejected by the experimenter*, $\alpha = .64$) (see Appendix F). Details about how the scales of belonging and trust were developed are presented in Study 1 of Chapter 4. [23]

[23] Similarly to Study 1, participants were asked to complete an online questionnaire a week before the lab session. The questionnaire included measures that could be theoretically related to performance and, therefore, included as covariates in the main analysis. The questionnaire included Portuguese translations of the Need to

3.6.2. Results

3.6.2.1. Validation of the Goal Priming

If participants in the priming condition identified RelComp as the feature distinguishing between Category A and Category B, then they should have rated the complementary phrases close to the extreme point of the scale corresponding to Category A (= 1) and the non-complementary phrases close to the other extreme of the scale corresponding to Category B (= 7). In other words, participants in the priming condition should rate complementary phrases lower than non-complementary phrases but no such difference should be found for participants in the control condition.

I tested this prediction with a Repeated Measures GLM, with the manipulation as between-subjects factor. I computed one mean score for the ratings of the complementary phrases, and one mean score for the ratings of the non-complementary phrases, and the two scores were treated as levels of the within-subjects factor. A main effect of complementarity, $F(1, 74) = 118.39$, $p < .001$, $\eta_p^2 = .62$, and a main effect of the manipulation, $F(1, 74) = 35.35$, $p < .001$, $\eta_p^2 = .32$, were qualified by an interaction, $F(1, 74) = 51.45$, $p < .001$, $\eta_p^2 = .41$. Post-hoc tests with Bonferroni correction showed, as expected, that in the priming condition the non-complementary phrases were rated significantly higher ($p < .001$), $n = 38$, $M = 4.49$, $SD = 0.40$, than the complementary phrases, $M = 2.25$, $SD = 0.83$. On the other hand, in the control condition the non-complementary phrases were also rated significantly higher ($p = .011$), $M = 4.29$, $SD = 0.53$, than the complementary phrases, $M = 3.83$, $SD = 1.03$, even though this difference was less pronounced that in the priming condition.

If participants in the control condition identified the sex of the characters as the feature distinguishing between Category A and Category B, then they should have rated the phrases with male subjects closer to the extreme point of the scale corresponding to Category A (= 1), phrases with male and female characters closer to the midpoint of the scale (= 4), and phrases

---

Belong scale (α=.82; Leary, et al, 2013); 3 items measuring the sense of belonging (α=.76; adapted from Twenge, et al., 2007), the Interpersonal Control scale (Paulhus, 1983; 10 items, e.g., *Even when I'm feeling self-confident about most things, I still seem to lack the ability to control social situations*; α=.79); the Personal Efficacy scale (Paulhus, 1983; 10 items, e.g., *When I get what I want it's usually because I worked hard for it*; α=.71), and a 5-item trust scale (adapted from Yamagishi, 1986, and Yamagishi & Yamagishi, 1994; e.g., *Most people can be trusted*; α=.63). Only 51% of participants complete these measures, and for this reason they were not included in the main analysis.

with female characters closer to the extreme point of the scale corresponding to Category B (= 7). In other words, in the control condition, but not in the priming condition, participants' rating should grow linearly from male-actor phrases to male-and-female-actor phrases to female-actor phrases.

I tested this prediction with a second Repeated Measures GLM, with the manipulation as between-subjects factor. I computed one mean score for the ratings of the male-actor phrases, one mean score for male-and-female actor phrases, and one mean score for the female-actor phrases. The three score were treated as levels of the within-subjects factor in the following order: male-actor, male-and-female-actor, female-actor. A main effect of sex, $F(2, 73) = 57.31$, $p < .001$, $\eta_p^2 = .61$, and a main effect of the manipulation, $F(1, 74) = 17.91$, $p < .001$, $\eta_p^2 = .19$, were qualified by an interaction, $F(2, 73) = 11.66$, $p < .001$, $\eta_p^2 = .24$. Post-hoc tests with Bonferroni correction, showed, as expected, that in the control condition male-and-female-actor phrases, $n = 38$, $M = 3.47$, $SD = 1.18$, were rated significantly lower ($p < .001$) than female-actor phrases, $M = 4.15$, $SD = 0.83$. Unexpectedly, however, male-actor phrases, $M = 4.27$, $SD = 0.66$ were rated significantly higher ($p = .003$) that male-and-female-actor phrases and non-significantly higher ($p = 1$) than female-actor phrases. In the priming condition, a similar pattern was observed. Male-and-female-actor phrases, $M = 2.21$, $SD = 0.95$, were rated significantly lower ($p < .001$) than female-actor phrases, $M = 3.79$, $SD = 0.56$; and male-actor phrases, $M = 4.57$, $SD = 0.60$ were rated significantly higher ($p < .001$) that male-and-female-actor and female-actor phrases.

3.6.2.2. Main Analysis

The effect of the manipulation on performance was tested with a GLM. Given that 35% of the participants were rewarded with a 5€ voucher instead of 0.5 credit, the type of reward was included as predictor in a 2 (manipulation) x 2 (reward) GLM on the number of correct substitutions in the letter-digit substitution task.

The analysis showed no significant main effect of the manipulation, $F(1, 72) = 0.70$, $p = .404$. There was a statistically significant effect of reward, $F(1, 72) = 4.98$, $p = .029$, $\eta_p^2 = .07$, which was, interestingly, qualified by a significant interaction with the manipulation, $F(1, 72) = 4.04$, $p = .048$, $\eta_p^2 = .05$). Mean differences and standard deviations are presented in Table 1. When rewarded with course credits, participants in the priming condition showed a tendency to perform better than those in the control condition, but this difference was trivial

and statistically not significant, (p = .329). Unexpectedly, when rewarded with a voucher participants in the priming condition performed worse than those in the control condition, but this difference was marginally significant (p = .080).

Table 1 - Estimated marginal means and confidence intervals in the substitution task on Study 2.

	0.5 Credit			Voucher			Total		
	n	*M*	*SD*	*n*	*M*	*SD*		*M*	*SD*
Priming	25	39.80	5.17	13	40.08	3.48	38	39.89	4.61
Control	24	38.33	5.28	14	43.64	6.40	38	40.29	6.20

3.6.2.3. Analysis with covariates

As in Study 1, I ran an ANCOVA with sex and age as covariates, the manipulation and type of reward as factors and performance in the substitution task as dependent variable. Non-significant interactions of the covariates with the manipulation [Sex, $F(1, 66) = 0.28$, p = .597, Age, $F(1, 66) = 3.04$, p = .086] and with reward [Sex, $F(1, 66) = 0.21$, p = .651, Age, $F(1, 66) = 1.77$, p = .188], showed that homogeneity of the regression slopes could be assumed. A model including the main effects of the manipulation and reward, as well as the interaction between the two, and the main effects of sex and age as covariates, showed a significant main effect of reward, $F(1, 70) = 5.202$, p = .026, η_p^2 = .069, and a marginal interaction between the manipulation and reward, $F(1, 70) = 3.416$, p = .069, η_p^2 = .047. The main effects of the manipulation, Sex, and Age were not significant ($p > .250$).

3.6.2.4. Exploratory Analyses

A univariate GLM with the manipulation and reward as predictors was conducted on the exploratory item of perceived effort in the substitution task. There were no significant differences between conditions. A multivariate GLM with the manipulation and reward as predictors was conducted on the seven causes of performance. Multivariate tests revealed that the main effects of the manipulation, and reward, as well as the two-way interaction were not significant. Finally, a multivariate GLM with the manipulation and reward as predictors was conducted on mean scores of Belonging, Control and Trust. Again, multivariate tests showed that the main effects of the manipulation, and reward, and the two-way interaction were not significant.

3.6.3. Discussion

With or without controlling for the effects of sex and age, the manipulation did not affect participants' motivation to perform their part of the relational pattern. Performance in the substitution task did not differ between the priming and control conditions.

Analyses of phrase ratings in the manipulation task suggest that the instructions were not clear enough to allow participants to correctly identify the feature distinguishing between the phrases of category A and B. As expected participants in the priming condition rated complementary phrases lower, i.e., closer to the extreme point of the scale corresponding to Category A (= 1), than non-complementary phrases. However, the fact that non-complementary phrases were rated closer to the midpoint of the scale (= 4), rather than to the extreme point of the scale corresponding to Category B (= 7) casts doubt on whether participants clearly identified RelComp as the distinction between the two categories.

On the other hand, in the control condition, participants unexpectedly rated complementary phrases lower than non-complementary phrases, even though these differences were less pronounced than in the priming condition. This suggests that, in spite of the fact that each category contained complementary and non-complementary sentences, either complementarity was salient to participants in the control condition, or the salient feature distinguishing between the two categories overlapped with RelComp, to some extent.

Furthermore, ratings of sex in the control condition showed that male-actor sentences were rated higher than female-actor sentences, when it should have been the other way around. These results suggest that participants in the control condition did not identify sex of the characters as the feature distinguishing between categories A and B. In addition, the fact that participants in the priming condition rated male-actor, male-and-female-actor, and female-actor phrases similarly to participants in the control condition suggests that the manipulation may not have produced motivation differences between participants.

One explanation for the failure of the manipulation, is that there were several differences between the sentences that may have been equally salient to participants in addition to complementarity or the sex of the characters. For example, in the priming condition, category A included one CS and one AR interaction, whereas category B included one CS and one MP interaction. Moreover, the context and aspect being coordinated in each interaction differed

between categories. Such noise may have made it more difficult for participants to notice complementarity or sex as distinctive features of categories A and B.

In sum, since there was no evidence that the priming task was effective, the most likely explanation for the absence of differences between conditions is that the goal of RelComp was not activated differently between conditions, and hence, did not cause performance differences.

3.7. Study 3

Study 3 was designed to replicate the effects of Study 1 by using a version of the manipulation of Study 2 where the difference between category A and category B were less ambiguous. To that end, the phrases presented on each category across conditions were modified to be similar in terms of RM, context and content of the interaction.

Furthermore, this study also measured a second indicator of motivation other than effort. Motivation is concerned with not only with activation but also with directionality of behavior (Braver, Krug, Chiew, et al., 2014; Pittman, 1998; Wright, 2016; Young, 1961). In other words, motivation describes why an individual on a given situation selects one action over another (Bargh, et al., 2010, p. 268). During social interactions people are often faced with the opportunity of satisfying one's self-interest by disrupting the relational pattern applied, and by transgressing the corresponding relational standards. For instance, people cheat or get free rides when they believe the relevant partners will not find out. However, if RelComp is intrinsically gratifying, insofar as it is activated as a goal, individuals should be more motivated to fulfill the relational pattern and, hence, committed to the corresponding relational standards, than to act selfishly. As result, when given the opportunity to satisfy their immediate self-interest by cheating, they should, instead, select a course of action that leads to completion of the relational pattern.

This hypotheses was tested by asking participants to perform a task in private, and by giving them opportunity to cheat. Previous research has shown that when participants are motivated to perform well on a task they continue to work on it despite a stop signal had been given while the experimenter was physically absent (Bargh, et al., 2001, Study 4). Hence, it was reasoned that if chances to win an attractive reward increased with performance on a task, participants would continue working on that task for a longer period after a stop signal, the more motivated they were to achieve the reward. Conversely, participants would stop working

in the task sooner after the stop signal, the more motivated they were to achieve RelComp, by following the instructions of the experimenter according to a pattern of AR, even if that meant decreasing their chances of winning the reward. In other words, it was predicted that participants primed with RelComp interrupt the task sooner after the stop signal than participants in the control condition.

Hence, in addition to performance in the substitution task done in the presence of the experimenter, Study 3 included a lexical decision task. This task was performed in the absence of the experimenter, who instructed participants that they should stop when an alarm sounded. Participants were informed that good performance in the lexical decision task would increase their chances of winning a reward.

3.7.1. Methods

3.7.1.1. Participants

Forty-six Portuguese students at a public university in Lisbon, 60.9% female, 95.6% undergraduates, 34.8% Psychology students, 91.3% Portuguese nationals, with ages between 18 and 29 (M_{age} = 21.13 *SD* = 2.16), took part in this study. Participants were recruited by students enrolled in a Master program on Social and Organizational Psychology at the university who had to run a study as part of a class on research methods. The recruitment was done either face-to-face on campus or by e-mail. As compensation, participants were assigned to a lottery where they had the chance of winning one out of three 100 € vouchers.

3.7.1.2. Design and Materials

As in Study 2 participants were randomly assigned to either a priming or control condition. With the exception of the priming task, the additional lexical decision task and one additional exploratory item, the substitution task and remaining exploratory items were the same as used in Study 2.

Priming task. The manipulation was similar to Study 2 with the exception of the phrases used to illustrate category A and B. In order to make the difference between the two categories clearer, the same phrases were used in the two categories, the only differences being the sex of the characters and whether the interaction described was complementary or

not. Before rating the phrases according to each category participants were also asked to describe the difference between the two categories in an open-ended format.

In the priming condition, participants read complementary versions of two interactions between a male and a female character, illustrating category A ("*When José and Rita meet, José reaches his hand out to Rita. Rita reaches her hand out to José and they shake hands*", "*Professor Dulce informed Manuel about the deadline to submit the final assignment. Manuel submitted the assignment on the date established by Professor Dulce*"), and non-complementary version of the same phrases, illustrating category B ("*When José and Rita meet, José reaches his hand out to Rita. Rita kept her hand in her pockets*", "*Professor Dulce informed Manuel about the deadline to submit the final assignment. Manuel submitted the assignment two days after the deadline established by Professor Dulce*").

In the control condition the phrases were combined differently so that in both categories there was the complementary version of one phrase and the non-complementary version of the other phrases. However, while in category A all characters in the phrases were male ("*When José and Manuel meet, José reaches his hand out to Manuel. Manuel reaches his hand out to José and they shake hands*", "*Professor Jorge informed Luis about the deadline to submit the final assignment. Luis submitted the assignment two days after the deadline*"), in category B they were female ("*When Silvia and Rita meet, Silvia reaches her hand out to Rita. Rita keeps her hand on her pockets*", "*Professor Dulce informed Joana about the deadline to submit the final assignment. Joana submitted the assignment on the date established by Professor Dulce*").

Lexical decision task. As additional dependent measure participants performed a lexical decision task. During 180 sec. participants were presented with a stimulus on a computer screen and were asked to decide if the stimulus was a letter or a digit, by pressing the keys 'K' or 'D', respectively. After a 10 item trial, letters and digits were presented randomly in the screen. Each stimulus stayed in the screen until the participant pressed one of the two keys and was followed by a fixation (+) that appeared for 500ms. Additionally, participants were asked to interrupt the task as soon as they heard an alarm bell. The alarm bell was set by the experimenter for 120sec after the beginning of the task. Two measures were used: the number of correct responses until the sound of the alarm after 120sec and the number responses to stimuli after the alarm for the next 60sec. The first was a measure of performance effort, the second was a measure of self-control effort.

Exploratory item. In addition to their perceived effort in addition to the seven possible causes of performance in the substitution task and lexical decision task participants also rated how much "winning the 100€ of the lottery" influence their performance in the two tasks (see Appendix E for a full description of the items).

3.7.1.3. Procedure

The procedures were the same as in Study 2 except that we introduced the Lexical Decision task between the Substitution task and the exploratory items task.

Since the compensation offered to participants was different from studies 1 and 2, the instructions to the Substitution task were adapted to the different compensation as follows: "*Before I forget… your participation in this experiment allows you to participate in a lottery to win one of three 100€ vouchers. I have already introduced your name in data base with the lottery participants. As you know your participation is voluntary and you can quit at any time, but the idea is that for participating in the lottery you complete four tasks in total within a 30 minute-time period. You have already finished one task and there are three left.*

After completing the Substitution task participants were guided to the desk with the computer and introduced to the Lexical Decision task. As in the substitution task, the experimenter explained that this task was a measure of cognitive abilities that was currently being developed and tested. Participants completed the 10-item trial and the experimenter explained that their goal was to respond correctly to as many stimuli as possible in 2 min. The experimenter also informed that she would have to leave for a few minutes and that she would leave an alarm set in the room so that participants knew when to interrupt the task. Such procedure was used to give participants the opportunity to cheat in the absence of overt social pressures to follow the instructions. Participants were also told that the ten individuals with the highest scores on this task would have their names assigned to the lottery three times, thus, increasing the probability of winning the prize. Hence, the reward was made contingent on performance to offer participants on both conditions a non-social incentive to perform well.

After instructing the participant to begin the task on the count to three and setting the alarm, the experimenter left the room and returned after 180sec. Next, the participants filled in the exploratory items and were debriefed according to the procedure used in the previous

studies. No participant showed any awareness of the purpose of the study or the relationship between the priming task, the substitution task, and the lexical decision task. The experimenter also informed participants that they would not have their name assigned three times in lottery and that the purpose of such procedure was to motivate them to perform better on that task, to test whether they would ignore the instructions to stop at the alarm sound in the absence of the experimenter in order to enhance their performance. They were ensured that, in case they continued working after the stop signal, the experiment was designed to make them do so, and, therefore, was not informative about their character.

3.7.2. Results

3.7.2.1. Validation of the Goal Priming

The ratings of the phrases were analyzed with the same statistical procedures used in Study 2. The Repeated Measures GLM with the manipulation as predictor on the mean scores of complementary and non-complementary phrases, showed a main effect of complementarity, $F(1, 44) = 77.27$, $p < .001$, $\eta_p^2 = .64$, and a main effect of the manipulation, $F(1, 44) = 17.49$, $p < .001$, $\eta_p^2 = .28$, which were qualified by an interaction, $F(1, 44) = 41.72$, $p < .001$, $\eta_p^2 = .49$. Post-hoc tests with Bonferroni correction showed, as expected, that in the priming condition the non-complementary phrases were rated significantly higher ($p < .001$), $n = 23$, $M = 4.51$, $SD = 0.56$, than the complementary phrases, $M = 2.10$, $SD = 0.67$. On the other hand, in the control condition non-complementary phrases, $M = 4.08$, $SD = 0.60$, were not rated differently ($p = .106$) from the complementary phrases, $M = 3.71$, $SD = 0.97$.

The Repeated Measures GLM with the manipulation as predictor on the male-actor, male-and-female actor, and female-actor mean scores, showed that homogeneity of variance was not ascertained for the three scores. Therefore, and given the similar n per cell, significance tests were estimated with Pillai's criterion (Tabachnick & Fidell, 2014). The results revealed a main effect of character's sex, $F(2, 43) = 47.43$, $p < .001$, $\eta_p^2 = .69$, and a main effect of the manipulation, $F(1, 44) = 7.91$, $p = .007$, $\eta_p^2 = .15$, which were qualified by an interaction, $F(2, 43) = 10.63$, $p < .001$, $\eta_p^2 = .33$. Post-hoc tests with Bonferroni correction showed, as expected, that in the control condition female-actor phrases, $n = 23$, $M = 4.67$, $SD = 1.33$, were rated higher than male-and-female-actor phrases, $M = 3.46$, $SD = 1.41$, $p < .001$, and male-actor phrases, $M = 3.52$, $SD = 1.31$, $p = .014$. However, male-and-female actor phrases were not rated higher ($p = 1$) than male-actor actor phrases. In the priming condition,

a different pattern was observed. Male-and-female-actor phrases, $M = 2.14$, $SD = 0.68$, were rated significantly lower than female-actor phrases, $M = 3.59$, $SD = 0.61$, $p < .001$, and male-actor phrases, $M = 4.79$, $SD = 0.47$, $p < .001$; and male-actor phrases were rated higher than female-actor phrases, $p = .011$.

Finally, the qualitative information collected when participants were asked to describe the differences between categories A and B revealed that some participants in the priming condition did not clearly identify complementarity as the distinguishing feature between A and B. Some participants wrote "intimacy", "equality", "[. . .] I think that in category A people know each other and in B not really [. . .]. In category A Manuel is dedicated and responsible, in B he seems sloppier", "trust among people, the ideas they have about each other", "sympathy, responsibility". These responses suggest that the sentences in the instructions might have confounded complementarity with particular relationships, tasks or interaction contexts.

Likewise, 16 participants (more than 50%) in the control condition did not identify the sex of the characters as the main difference between categories. In fact, they reported the difference to be related to the quality of the interactions described. Some examples are answers such as "category A – the event is corresponded, category B – the event is not corresponded", "non-compliance and compliance, respectively, with the action presented by both parties", or "in category A there is a more relaxed and positive interaction, while in category B it is more formal or negative."

3.7.2.2. Main analysis

A one-way ANOVA showed that participants in the priming condition, $n = 23$, $M = 40.13$, $SD = 6.21$, performed slightly, but not significantly better in the substitution task, $F(1, 44) = 2.37$, $p = .131$, than participants in the control condition, $n = 23$, $M = 37.22$, $SD = 6.61$.

Participants in the priming condition were expected to have less trials after the alarm than participants in the control condition. Since participants in both conditions were offered a non-social incentive to perform in the lexical decision task, no differences on performance within the 120sec. were predicted. Descriptive statistics showed that the number of trials after the alarm was absolutely the same between conditions. Seven participants in each condition responded once after the alarm. If we assume that 1 response after the alarm could have been

accidental, these results suggest that all participants followed the instructions of the experimenter. Furthermore, a second one-way ANOVA on the number of correct responses in the lexical decision task showed no significant differences, $F(2, 53) = 3.68$, $p = .032$, between participants in the priming, $n = 21$, $M = 69.67$, $SD = 5.97$, and control conditions, $n = 22$, $M = 70.68$, $SD = 6.42$.

3.7.2.3. Analysis with covariates

As in the previous studies I conducted an ANCOVA controlling for the effects of sex and age in the substitution task. Non-significant interactions of the manipulation with sex, $F(1, 39) = 1.20$, $p > .250$, and age, $F(1, 39) = 0.54$, $p > .250$, showed that the homogeneity of the regression slopes could be assumed. A statistical model including the main effect of the manipulation, and the main effects of sex and age as covariates, showed a marginally significant difference in performance in the substitution task, $F(1, 41) = 2.87$, $p = .098$, $\eta_p^2 = .07$, between the priming, $n = 23$, $EMM = 40.01$, $SE = 1.28$, and control conditions, $n = 22$, $EMM = 36.85$, $SE = 1.31$. The effect of sex was significant, $F(1, 41) = 5.50$, $p = .024$, $\eta_p^2 = .12$, but the effects of age was not, $F(1, 41) = 0.90$, $p > .250$.

3.7.2.4. Exploratory Analyses

An ANOVA was conducted on the exploratory item of perceived effort in the substitution and lexical decision tasks and showed that perceived effort was not affected by the manipulation. A MANOVA was conducted on the eight causes of performance. Multivariate tests revealed that effect of the manipulation on each possible cause was not significant. Finally, a second MANOVA of participant's sense of Belonging, Control and Trust also showed non-significant effects of the manipulation.

3.7.3. Discussion

Similarly to study 2, analyses of phrase ratings on the manipulation task suggest that the instructions may not have been clear enough to allow participants to correctly identify the feature distinguishing between the phrases of category A and B.

As expected, in the priming condition participants rated complementary phrases lower than non-complementary phrases, and, unlike Study 2, no such difference was observed among participants in the control condition. However, as in Study 2, non-complementary

phrases were rated closer to the midpoint of the scale (= 4), rather than to the extreme point of the scale corresponding to non-complementarity (= 7). These results, together with information from the open-ended responses raise suspicion over whether participants clearly identified RelComp as the feature distinguishing between the two categories.

Likewise, as expected, participants in the control condition rated female-actor phrases higher than male-actor and male-and-female actor phrase, whereas participants in the priming condition rated female-actor phrases higher than male-and-female actor phrases, but lower than male-actor phrases. Notice that, unlike Study 2, sex ratings by primed participant followed a different pattern from ratings by control participants. However, the fact that participants in the control condition did not differentiate between male-actor and male-and-female actor phrases suggests that sex may not have been clearly identified as the feature distinguishing between the two categories. Responses by participants in the control condition to the open-ended question, reiterate such suspicion by showing that features other than sex, and closely related to RelComp (e.g., compliance) were identified.

Overall, the results on the phrase ratings showed that the manipulation was more successful in Study 3 than in Study 2, but still not effective enough to allow conclusions about its effect, nor to produce effects powerful enough to reach statistical significance. This may explain the marginal effect of the priming on performance in the substitution task when controlling for covariates.

In addition to effort, Study 3 also tested the effect of the RelComp goal on another indicator of motivation: action selection. Participants performed a lexical decision task in the absence of the experimenter, and were instructed to interrupt the task at the sound of an alarm left in the room by the experimenter. They were also told that the chances to win an attractive reward increased with their performance on the task. It was predicted that participants in the priming condition would be more motivated to achieve RelComp by following the instructions of the experimenter, even if that meant lower chances of winning the prize. On the other hand, participants in the control condition should be more motivated to win the prize by performing as good as possible, even if that meant ignoring the experimenter's instructions. Therefore, participants in the priming condition should interrupt the task sooner after the sound of the alarm than participants in the control condition.

There were no effects of the manipulation on the number of trials after the alarm, nor on performance in the lexical decision. Worthy of notice is the fact that the same number of participants in the two conditions continued after the alarm sound, and that each participant performed only one trial after the alarm. Given that one trial could have been accidental, it can be said that participants did not cheat by disrespecting the instructions of the experimenter. Possibly, increasing participants' chances of winning the lottery was not tempting enough to justify incurring the affective or social costs of non-complementarity, i.e., of not following the instructions of the experimenter. This explanation raises the possibility that the goal of RelComp was activated by the situation itself, regardless of the priming, and that participants across conditions were anyway motivated to fulfill the relational pattern with the experimenter and committed to the corresponding relational standards. This possibility will be discussed in detail in the general discussion of the chapter.

3.8. Study 4

In studies 2 and 3, participants in the priming condition clearly distinguished between the complementary and non-complementary sentences, even though the non-complementary sentences were not rated as extremely as expected. In the control condition, however, some participants depicted other features as distinguishing between the two categories, some of which were closely related to RelComp, as shown by control participants' complementarity ratings in Study 2, and open-ended responses in Study 3.

Thus, the goal of Study 4 was to replicate the priming effect of Study 1, by using a manipulation that did not describe RelComp as a norm and did not have the same limitations as the control conditions of studies 2 and 3. For that purpose, a version of the priming instructions was improved in order to make the Complementarity more salient as the difference between categories A and B, and a modified version of the verb count task of Study 1 was used in the control condition.

3.8.1. Methods

3.8.1.1. Participants

Seventy-four participants took part in this study. Sixty-nine percent were female; 97.2% were Portuguese nationals; 70.3% were undergraduate students, 13.5% had a high school diploma, 8.1% had a bachelor degree and 8.1% had a master degree. Ages were between 18

and 51 (M = 23.38 SD = 6.76). Of the total sample, 48 students at a public university institute in Lisbon were recruited as part of a requirement for a psychology class and earned 0.5 credit for participating in an experiment for 30 minutes. The remaining participants were recruited by three students of the Master in Social and Organizational Psychology at ISCTE-IUL who had to run a study as part of a class on research methods. The recruitment was made by convenience both face-to-face on campus and by e-mail. These participants were assigned to a lottery where they had the chance of winning one out of three 100€ vouchers.

3.8.1.2. Design, Materials and Procedure

Participants were randomly assigned to one of two conditions (priming vs. control). With the exception of the manipulation which was adapted, the exploratory items of the third task which were removed, and two new measures which were introduced after de substitution task, the procedures, materials and dependent measure were same as in Study 1.

Priming task. In the priming condition the participants were presented with two categories of phrases: Category A and Category B. In order to reduce any possible confound of complementarity with particular kinds of interactions, both categories were illustrated with four phrases, each corresponding to one RM. The phrases in Category A described complementary interactions: "*Manuel reached his hand out to José when he met him. José looked at Manuel's hand, reached his hand out to Manuel and shook his hand"* – CS*; "The Professor informed Rita about the deadline to submit the final assignment. Rita submitted the assignment on the deadline established by the Professor*" – AR; *"Luís and Maria are roommates and decided to take turns in taking the garbage out. Yesterday Maria took the garbage out. Today the garbage was taken out by Luís"* – EM*; "Teresa works at a restaurant and served lunch to a customer. The customer asked for the bill and paid for the lunch"* – MP). The phrases in Category B described the non-complementary version of the same four interactions in Category A: "*Manuel reached his hand out to José when he met him. José looked at Manuel's hand and kept his hand on his pocket"; "The Professor informed Rita about the deadline to submit the final assignment. Rita submitted the assignment ten days after the deadline established by the Professor*"; *"Luís and Maria are roommates and decided to take turns in taking the garbage out. Yesterday Maria took the garbage out. Today the garbage was not taken out"; "Teresa works at a restaurant and served lunch to a customer. The customer asked for the bill and left before Teresa returned with the payment value"*). After reading the instruction, participants in the priming condition were asked in an open-

ended format what the difference between the two categories was. Then they were asked to read the same 20 phrases used in Studies 2-3 (Appendix D) and to rate on a 7-point Likert scale how much each of them fitted into category A or category B (Category A = 1; Category B = 7).

In the control condition the participants were instructed to "Read the following phrases and indicate the number of verbs in each phrase, using the scale below" (1 = 1 verb; 7 = 7 verbs). As part of the instruction, participants were shown eight phrases, each with the corresponding number of verbs (e.g., "*Manuel reached his hand out to José when he met him. José looked at Manuel's hand, reached his hand out to Manuel and shook his hand"*, number of verbs = 5). The eight phrases were exactly the same and presented in the same order as the phrases of categories A and B of the priming condition. After reading the instructions, participants counted the verbs in the same 20 phrases used in the priming condition.

Measures. After the digit-letter substitution task participants filled in a paper-and-pencil version of two exploratory measures. The first was an item assessing the participants' perception of their performance in the substitution task. The participants responded to the item "*Use the following scale to evaluate your performance in the previous cognitive task, by comparing it to the performance you wish you had. Put a circle around the number corresponding to your answer. My actual performance was…*" and they were presented a 7-point Likert scale (1- much lower than my desired performance, 4 – exactly the same as my desired performance, 7 – much higher than my desired performance). The second exploratory measure was a measure of affect. Participants indicated how positive and how negative they felt about their performance in the previous task on an evaluative space grid (Larsen, Norris, McGraw, et al., 2009, see Appendix G).

It is known that goal sates are associated with positive affect (Custer & Aarts, 2005; Veltkamp, et al., 2009) and, for that reason, people experience higher positive affect when they attain the goal than when they fail (Chartrand, 2007). Hence, it was reasoned that participants who were more motivated to perform well at the substitution task should experience higher positive affect when they believed they performed well, and higher negative when they believed they performed badly, than participant who were less motivated. Therefore, assuming that participants in the priming condition would be more motivated to perform well in the substitution task than participants in the control condition, I predicted that high performance evaluation would be associated with low negative affect and high positive

affect, and that this relationship would be moderated by the manipulation, i.e., more pronounced in the priming condition.

3.8.2. Results

3.8.2.1. Validation of the Goal Priming

Participants in the priming condition were expected to rate the complementary sentences close to the extreme point of the scale corresponding to Category A (=1) and the non-complementary sentences close to the other extreme of the scale corresponding to Category B (=7). A Repeated Measures ANOVA following the same statistical procedure that was used in Study 1 showed that the ratings of complementary sentences, M = 2.40, SD = 0.81, were lower than the ratings of the non-complementary sentences, M = 5.74, SD = 0.56, and that this difference was significant, $F(1, 35) = 258.61$, $p < .001$, $\eta_p^2 = .88$.

Moreover, according to the responses to the open-ended question, only four participants were unclear about whether the difference between the two categories was related to complementarity. Their responses were: “in A is a matter of sympathy and in B a matter of responsibility”; “knowledge”; “phrasal construction”; “in category B the actions are different”. The remaining participants responded, for example, “In category A people experience and follow the adequate social protocol, in category B they don’t”, “lack of reciprocity and disrespected rules”, “not fulfilling what they are supposed to, either through a commitment or through social norms”, “category A they acted in an ethically correct way”.

3.8.2.2. Main analysis

Given that 35% of the participants were rewarded with a voucher instead of 0.5 credit, and that the study was conducted by three experimenters, the effects of reward and experimenter were controlled in a 2 (manipulation) x 2 (reward) x 3 (experimenter) ANOVA.

There was a statistically significant effect of the manipulation, $F(1, 62) = 4.91$, $p = .030$, $\eta_p^2 = .07$, on performance, but in the opposite direction to the one predicted. On the other hand, the main effect of reward was not significant, $F(1, 62) = 2.31$, $p = .133$, nor was the interaction between the manipulation and reward, $F(1, 62) = 1.49$, $p = .227$. Unexpectedly, there was a statistically significant effect of the experimenter, $F(2, 62) = 12.38$, $p < .001$, $\eta_p^2 = .29$, qualified by an interaction with reward, $F(2, 62) = 5.46$, $p = .007$, $\eta_p^2 = .15$, but not with the manipulation, $F(2, 62) = 1.93$, $p = .153$. The three-way interaction was marginally

significant, $F(2, 62) = 2.61$, $p = .082$, $\eta_p^2 = .08$. Table 4 presents the means and standard deviations, as well as the significant differences ($p < .05$) for the main effect of the manipulation and the interaction between the experimenter and reward.

Table 4 – Means and standard deviations in the substitution task

	Priming			Control			Total		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
					Experimenter 1				
0.5 Credit	10	$_1$30.40$^{a\,x}$	5.13	11	$_1$29.27$^{a\,x}$	4.71	21	$_1$29.81^{x}	4.82
Voucher	5	$_2$38.40$^{a\,x}$	5.77	3	$_2$38.33$^{a\,x}$	7.77	8	$_2$38.38^{x}	6.02
					Experimenter 2				
0.5 Credit	4	$_1$41.50$^{a\,y}$	3.87	4	$_1$41.50$^{a\,y}$	4.44	8	$_1$41.50^{y}	3.85
Voucher	2	$_1$33.50$^{a\,x}$	2.12	2	$_1$47.00$^{b\,x}$	1.41	4	$_1$40.25^{x}	7.93
					Experimenter 3				
0.5 Credit	9	$_1$38.67$^{a\,y}$	3.71	10	$_1$44.20$^{b\,y}$	5.16	19	$_1$41.58^{y}	5.24
Voucher	6	$_1$40.00$^{a\,x}$	5.87	8	$_1$41.75$^{a\,x}$	7.85	14	$_1$41.00^{x}	6.87
Total	36	36.58^{a}	6.15	38	38.76^{b}	8.38			

Note: Means with different superscripts are significantly different, $p < 05$, and means with equal superscripts are non-significantly different, $p < .05$. Superscripts *a* and *b* identify comparisons between priming and control conditions; superscripts *x* and *y* identify comparisons between experimenters; and superscripts *1* and *2* identify comparisons between rewards.

Participants rewarded with 0.5 credit performed significantly worse with experimenter 1 than with experimenters 2 and 3. In addition, participants who interacted with experimenter 1 performed better when they were rewarded with a voucher than with a course credit. These results, however, have to be interpreted with caution given the low sample size of some conditions.

3.8.2.3. Analysis with covariates

As in the previous experiments I ran an ANCOVA controlling for the main effects of sex and age on the substitution task as covariates. Non-significant interactions of the covariates with the manipulation [Sex, $F(1, 59) = 0.05$, $p = .818$, Age, $F(1, 59) = 0.01$, $p = .919$], reward [Sex, $F(1, 59) = 1.01$, $p = .318$, Age, $F(1, 59) = 0.32$, $p = .573$], and the experimenter [Sex, $F(2, 59) = 2.06$, $p = .136$, Age, $F(2, 59) = 1.12$, $p = .332$] showed that homogeneity of the regression slopes could be assumed. A statistical model including the main effects of the manipulation, reward and experimenter, the two- and three-way interactions, and the main effects of sex and age as covariates, showed statistically significant effects of reward, $F(1, 60) = 5.65$, $p = .021$, $\eta_p^2 = .09$, experimenter, $F(2, 60) = 13.10$, $p < .001$, $\eta_p^2 = .30$, and reward*experimenter interaction, $F(2, 60) = 5.98$, $p = .004$, $\eta_p^2 = .17$. There was a marginally significant difference, $F(1, 60) = 3.18$, $p = .080$, $\eta_p^2 = .05$, between the priming, $n = 36$, *EMM*

= 37.62, *SE* = 1.03, and the control condition, *n* = 38, *EMM* = 40.23, *SE* = 1.03. The interactions of the manipulation with reward (p = .576) and with the experimenter (p = .125), the three-way interaction (p = .063), and the effects of Sex (p = .170) and Age (p = .065) were not significant.

3.8.2.4. Exploratory analyses

In order to test whether performance evaluation would predict higher Positive affect and lower Negative Affect, and whether this effect would be moderated by the manipulation, Hayes' PROCESS macro for SPSS was used to run two moderated regression models predicting either Positive or Negative Affect. As expected, performance evaluation significantly predicted positive affect in the first model, β = 0.70, *SE* = 0.17, $t(68) = 4.08$, $p < .001$, d = 0.48, and negative affect in the second model, β = -0.57, *SE* = 0.21, $t(68) = -2.79$, $p = .007$, d = 0.33. However, main effects of the manipulation and interactions between the manipulation and performance evaluation were not significant in the first, β = -0.12, *SE* = 0.25, $t(68) = -0.42$, $p > .25$, nor in the second model, β = 0.39, *SE* = 0.30, $t(68) = 1.32$, $p > .15$.

3.8.3. Discussion

This study attempted to replicate the findings of Study 1 by presenting different instructions to the manipulation task in the priming condition that did not confound the RelComp goal with normative behavior. Since the participants were asked to identify the differences between two categories of phrases, and to rate how much each of the following phrases belonged to one or another category, the concept of RelComp was not mentioned, nor were there any references to what people do when they relate. Hence, the confound of the RelComp goal with normative behavior was eliminated.

In addition, the control condition used in this study attempted to eliminate the uncertainty about the participants' ability to identify sex as the feature differentiating the two categories, and the possibility that they identified RelComp related features, instead. Differently from studies 2 and 3, and similarly to Study 1, participants in the control condition were asked to count the verbs on each phrases, in order to avoid uncertainty about their ability to identify sex as the feature differentiating the two categories.

Despite the attempted improvements of the priming task relatively to Study 1, and of the control task relatively to studies 2 and 3, control participants performed better in the substitution task than priming participants. The main hypothesis was not supported.

Unexpectedly, there were statistically significant effects of the experimenter and two-way interaction between the experimenter and reward. This effect suggests that the script for the interaction with the participant was operationalized differently by each experimenter, which may explain the inconsistency of the results of Study 4 with those of studies 2 and 3.

3.9. General Discussion

I proposed that RelComp is intrinsically satisfying, and therefore is sufficient to energize and guide behavior on social interactions, regardless of ulterior motives. The four studies investigated this idea by testing whether participants pursuing the goal of RelComp would be more motivated, than those who did not, to perform their part of the relational pattern with the experimenter. The RelComp goal was manipulated through priming, and motivation was measured as effort, indicated by performance on a cognitive task. I assumed that, given the relational pattern that is naturally part of a laboratory setting where an experimenter interacts with a participant, RelComp would be achieved when the experimenter performed his part of giving instructions and rewarding the participant for taking part in the study, *and* when the participant performed his part of following the instructions and completing the tasks requested by the experimenter. I expected that participants primed with RelComp would have the goal to complement more accessible than those who did not, and, for that reason, would make more effort to follow the tasks requested by the experimenter.

The hypothesis was supported by Study 1. Participants primed with RelComp performed better in the substitution task when compared to participants in the two control conditions together, and in the first control condition separately. Since the manipulation task contained the same social content (e.g., phrases describing social interactions) in the priming condition and first control condition, performance differences cannot be explained by reading about social interactions, but instead by the accessibility of RelComp. On the other hand, differences between the priming and the second control condition did not reach significance. Since some stimulus phrases were related to the concept of achievement, it is possible that in the second control condition the goal of achievement was activated, influencing subsequent performance.

Because the instructions to the manipulation in the priming condition explicitly described the concept of Relational Complementarity as something that people do to relate, two alternative explanations for these results pertained to whether RelComp was activated as a norm or as a semantic category, instead of a goal. Therefore, studies 2 and 3 attempted to replicate the results of Study 1 by using a manipulation that did not explicitly mention RelComp.

On both studies the hypothesis was not supported. The participants in the priming condition did not perform significantly better in the substitution task than participants in the control condition. The results on the manipulation task suggest that the goal of RelComp was not differently activated between conditions.

Even though the effects the manipulation were not significant in studies 2 and 3, there were differences in the predicted directions between the participants in the priming and control conditions. In Study 2, different rewards were offered to participants for taking part in the experiment. The two types of reward were 0.5 credit vs. voucher. After the manipulation and before the substitution test, participants were offered the voucher in hand, whereas in the other reward condition they were merely informed that they had earned the 0.5 credit. Reasoning that there might be a difference between being informed of earning a reward and getting the tangible reward in hand, the main effect of reward and the reward-manipulation interaction were controlled for in the data analysis. A main effect of reward was detected. Participants performed better in the voucher condition that in the 0.5 credit condition. In addition, reward interacted with the manipulation. Participants rewarded with a voucher performed unexpectedly better, but not significantly, in the control condition than in the priming condition, whereas participants rewarded with a 0.5 credit performed better, although not significantly, in the priming than in the control condition.

In Study 3, likewise, participants in the priming condition performed better, but not significantly, than participants in the control condition. Since the differences between the priming and control conditions on performance, in Study 3, and in the 0.5 credit condition of Study 2 were in the predicted direction, it was reasoned that the manipulation might not have been effective enough to produce significant differences. In fact, the validation of the manipulation suggested that the task in the control condition in both studies might not have shielded participants against identifying RelComp in the stimulus phrases. This possibility encouraged Study 4 where a modified version of the manipulation was employed.

Furthermore, Study 3 tested the effect of priming the RelComp goal on an indicator of motivation other than effort: selecting one action over another. Participants were instructed to stop working on a task after an alarm sound. This task was performed in the absence of the experimenter, and task performance was an opportunity to increase their chances of winning a lottery prize. It was predicted that participants in the priming condition would be more motivated to follow the instructions of the experimenter and, therefore, would end the task earlier after the alarm than participants in the control condition. This hypothesis was also not supported: participants did not continue after the alarm sound in neither condition.

Study 4 was conducted with a new version of the manipulation that did not have the same limitations of the priming task of Study 1 and of the control conditions of studies 2 and 3. Once, again the hypothesis was not supported. Differently from studies 1-3, three experimenters collected the data in Study 4. Unexpectedly, differences between experimenters were found, suggesting that the script for the interaction with the participant was operationalized differently by each experimenter.

There are several possible explanations for the lack of support to the main hypothesis. The first possibility is that RelComp does not have motivational properties. More specifically, for any cognitive representation to generate motivated behavior is has to be associated to positive affect and/or to deprivation reduction (Custer & Aarts, 2005; Veltkamp, et al., 2009). I did not formalize RelComp as a deprivation based need, but I proposed that it is inherently satisfying, which implies an association to positive affect. However, it is possible that my claim is false and that the effect observed in Study 1 was a statistical artifact. An exact replication of Study 1 would be necessary to determine whether the effect observed was false.

The second possible explanation is that RelComp is only motivating when it is perceived as a social norm. That is, people do what is complementary, not because RelComp is satisfying in itself, but because it is normative, and following norms is, for some reason, motivating (Bicchieri & Xiau, 2009; Cialdini, Demaine, Sagarin, et al., 2006; Sripada, & Stich, 2006). According to such an explanation, the only difference between the priming and control conditions was observed when RelComp was explicitly described as a norm, i.e., in Study 1. Given the fact that RelComp is usually achieved by doing what is normative within a social-cultural context, the theoretical relevance of such discussion is broader than the scope of the current experiments. For that reason it will be addressed at length in Chapter 5.

The third possibility, is that RelComp is motivating, but the manipulations used in studies 2 and 3 were not effective in activating the RelComp goal. On the other hand, when a more effective manipulation was employed in Study 4 the script of the experimenter was not correctly followed by some of the experimenters, rendering the results uninterpretable. This hypothesis is supported by the effect of experimenter found in Study 4.

The fourth, possibility is that RelComp does have motivational properties, but that the RelComp goal was more strongly activated by the perception of the relational pattern to be applied to the interaction than by the priming task. In other words, if perceiving the actions of the experimenter as part of a relational pattern in which one is involved activated the goal of RelComp, there was no room left for additional activation by the priming: the participant already wanted to complement (cf. Custer & Aarts, 2005 for a similar interpretation of goal-priming effects). This possibility is consistent with the activation principles outline in the introduction of this chapter, namely that the RelComp goal is activated whenever a perceived action by the other is represented as part of a relational pattern in which one is involved as participant.

Why, then, was the priming manipulation used? Studies manipulating goal-accessibility and goal-discrepancies separately showed that perceived goal-discrepant situations only motivate behavior when the corresponding goal representation is accessible (e.g., Custer & Aarts, 2007). In the current experiment, it was assumed that a discrepancy between a non-complementary and a complementary state would be perceived when the experimenter performed his part of a relational pattern (e.g., giving instructions, rewarding the participant), leaving to the participant the part of reducing the discrepancy by completing the relational pattern (e.g., by performing the tasks according to the instructions). As suggested before, "when the desirability of a goal state is uniformly high [accessibility of the goal state] may be the crucial factor that determines whether people react to a goal discrepancy" (Custer & Aarts, 2007, p. 631). Hence, given that the goal-discrepancy was uniform across conditions, it was reasoned that manipulating goal accessibility through priming would cause differences in effort to reduce the discrepancy. However, there are two conditions for accessibility: either the goal is temporarily activated by environmental stimuli (e.g., priming) or the goal is chronically accessible due to frequent pursuit (Custer & Aarts, 2007). Hence, assuming that a goal-discrepancy was perceived by participants in the priming and control conditions, and given the fact that there were no differences in performance between conditions, it is possible

that the RelComp goal was chronically accessible for all participants. If this were the case, then, the effect of the priming was redundant.

This possibility speaks in favor of RelComp being an intrinsically satisfying and affectively charged goal-state which is frequently pursued, given the fundamental and prevalent role of social coordination in human life. However, further research is still necessary to demonstrate the motivational effects of RelComp.

CHAPTER 4
Relational Complementarity is Affectively Charged and Enhances Belonging, Control and Trust.

Human beings are heavily dependent on social relationships to satisfy not only material needs, but also psychological ones. Well-being, life satisfaction and health are associated with the fulfillment of core social needs (S. Fiske, 2004, 2008; Stevens & S. Fiske, 1995), for instance, to belong (Baumeister & Leary, 1995; Begen & Turner-Cobb, 2015; Hale, Hannum & Espelage, 2005; Mellor, Stokes, Firth, Hayashi & Cummins, 2008), to control (Heckhausen & Schulz, 1995; Quevedo & Abella, 2014; Schulz, 1976; Schulz, Heckhausen & O'Brien, 1994; Seligman, 1975), and to trust other people (Poulin & Haase, 2015). Engaging in social relationships is one common way by means of which such needs are met. To illustrate, people fulfill their need to belong by establishing and maintaining positive and lasting bonds with others (Baumeister & Leary, 1995); and when they feel rejected they use apologies and accounts, and make compensations and sacrifices for others in order to restore their social acceptance (Leary & Allen, 2011). They enhance their sense of personal control by seeking power over others (S. Fiske & Dépret, 1996; Schmalt & Heckhausen, 2008) or by complying with powerful others (Fennis & Aarts, 2012). And individuals learn to trust based on previous encounters and interactions with other people in specific domains of their lives (Glanville & Paxton, 2007; Wieselquist, Rusbult, Foster & Agnew, 1999).

What is the process by which social relationships effectively satiate core needs? The best answer available so far is: it depends on the core need, and on the kind of relationship being investigated. First, as will be illustrated, different theoretical and empirical approaches have been developed independently to investigate the role of particular needs or motives in social behavior. Consequently, approaches inspired by different core motives have presented distinct processes to describe the role of social relationships in motive fulfillment. Second, while relying on descriptions about the nature of human beings—what individuals need, these approaches neglect the defining properties that are intrinsic to all kinds of relationships—what relationships are. Therefore, the processes proposed successfully describe how particular motives are met in specific kinds of relationships, but can hardly be generalized to all kinds.

As an alternative, I rely on a conceptualization of social relating to present one single process by which the needs to belong, to control and to trust are fulfilled in virtually all kinds of social relationships. In Chapter 2, I suggested that to socially relate is, by definition, the pursuit of Relational Complementarity (RelComp), i.e., the quality of any interaction pattern that is constituted by actions of each participant that are mutually congruent and completing with reference to a shared relational model (RM). In this chapter, I propose that, if RelComp is the defining feature of all kinds of social relating, then, the core needs are often satiated whenever people achieve RelComp in their social interactions, as opposed to when they fail to do so. In other words, RelComp is sufficient condition for fulfilling the core needs to belong, to control, and to trust, regardless of the particular kind of relationship people engage in. Additionally, I also propose that, if RelComp simultaneously fulfills different core motives that are associated with well-being, life satisfaction and health, then, it is also an affectively charged state of affairs. As suggested in Chapter 3, RelComp is satisfying or enjoyable; either because it is pleasant—"feels good"—or because it is the right thing to do—"feels right". On the other hand, non-complementarity is unpleasant, and "feels wrong". Therefore, I hypothesize that individuals experience more positive affect, and a stronger sense of belonging, control, and trust in the partner when they participate in complementary interactions than in non-complementary interactions, independently of the kind of relationship they have with one another.

4.1. RelComp Enhances Positive Affect and Decreases Negative Affect.

Effort is one hallmark of goal-directed behavior (Martin & Tesser, 2009; Wright, 1996; Wright & Brehm, 1989). In chapter three I hypothesized that, if RelComp is a satisfying state of affairs, then, it should reflect on participants' effort to perform their part of a relational pattern. The results did not support the hypothesis. However, another hallmark of goal-directed behavior is its affective consequences (Martin & Tesser, 2009). It has been demonstrated that goals-states are desirable because they are associated with positive affect (Custer & Aarts, 2005; Veltkamp, et al., 2009). Therefore, people experience more positive affect when they succeed than when they fail to achieve the goal (Chartrand, 2007), and the faster they progress towards the goal (Lawrence, Carver, Scheier, 2002). Hence, an alternative way to show that RelComp is inherently satisfying is to test whether individuals experience more positive affect when the intended pattern of RelComp is achieved, than when it is not. In other words, I propose that:

Hypothesis 1: Participants' positive affect is higher in complementary interactions than in non-complementary interactions.

Consistently, if non-complementarity is unpleasant and "feels wrong":

Hypothesis 2: Participants experience lower negative affect[24] in complementary interactions than in non-complementary interactions.

4.3. RelComp Fulfills Core Social Motives

4.3.1. The Control Motive

Several psychological theories are based on control related constructs, such as sense of control, personal control, locus of control, effectance, self-efficacy, agency, mastery, self-determination, helplessness, or causal attributions, among others (for review on constructs of control see Skinner, 1996). Most of these theories assume that people have a desire for behavior-events contingencies (Bandura, 1997; Burger & Cooper, 1979; Heckhausen & Schulz, 1995; Seligman, 1975), that give them a sense of personal effectiveness in producing the desired outcomes in the environment (Stevens & S. Fiske, 1995; Thompson & Schlehofer, 2008; White, 1959), even if such contingencies are illusory (e.g., Rothbaum, Weisz & Snyder, 1982). Hence, the control motive is fulfilled when individuals either believe that they can control the environment (subjective control) or actually experience controlling the environment (experienced control; Skinner, 1996). Since the environment is filled with potentially controllable social and non-social (e.g., solving a math problem) events, control can be fulfilled without (for a review see Thompson & Schlehofer, 2008) or within social relationships.

Within relationships, people can maintain control by exercising power over others. Some perspectives view "power relations as social structural forms of control deprivation and control maintenance" (S. Fiske & Dépret, 1996, p. 32). In other words, power is motivated by a sense of control (Schmalt & Heckhausen, 2008) or impact on others (McClelland, 1975), so that the powerful are motivated to maintain control, whereas the powerless are motivated to

[24] Recent accounts on affect, have demonstrated that positive affect and negative affect can co-occur, as opposed to correlate (Larsen, Hershfield, Stastny & Hester, 2017). In other words, positive affect and negative affect can be simultaneously evoked by the same stimulus, along orthogonal dimensions (cf. Watson & Tellegen, 1985). Therefore, two separate hypotheses are formulated for Positive and Negative affect.

restore it (S. Fiske & Dépret, 1996). If power is defined as the ability to control one's and other's resources (Galinsky, Gruenfeld, & Magee, 2003), then one who is motivated to gain control over the environment should necessarily desire control over resources that are relevant for attaining one's outcomes, even if that includes influencing others by controlling the resources they value (e.g., French & Raven, 1959). On the other hand, some authors suggest that when *primary control*, i.e., the perceived ability to "change the world" according to the desires of the individual, is weakened, people exert *secondary control*, by "[flowing] with the current" (p. 8), and by adjusting oneself to external constraints, including authorities, groups or deities (Rothbaum, et al., 1982). In other words, people imbue the social environment with increased control in order to restore their own personal sense of control. Hence, the less powerful can enhance their sense of control by attending to those who control their outcomes (S. Fiske, 1993), by cooperating with them or accommodating to their desires (Van Lange & Rusbult, 2011), or by complying with requests and obeying to authorities (Fennis & Aarts, 2012).

Presumably, cooperation, accommodation, compliance or obedience, allow individuals to experience a contingency between their own action, the action of the partner, and the desired outcome, which is in part under the partner's control. I propose that such contingency exists because people apply RMs to coordinate their interactions. Relational models inform how individuals act in certain contexts and in reply to specific actions by others. Provided that the partners apply the same RM, in the same way, to their interaction, RMs allow each partner to anticipate the action of the other, and to select and perform the actions that are more likely to evoke the desired complementary action by the other. Therefore, individuals with a high desire for control, are likely to either complement a previous action by the other (possibly through compliance, obedience, cooperation, or accommodation), or to initiate a new relational pattern, by performing one's part of the pattern, while expecting that the other will do his part. Hence, when RelComp is achieved by fulfilling the intended RM, participants' sense of control should be higher than when they fail to achieve RelComp. More formally:

> **Hypothesis 3**: Participants' sense of control is higher in complementary interactions than in non-complementary interactions.

Notice that previous research about the role of the control motive on social behavior has emphasized power or hierarchical relationships (e.g., Fennis & Aarts, 2012; S. Fiske & Dépret, 1996; Galinsky, et al., 2003; McClelland, 1975), which are implementations of the

AR model. In contrast, Hypothesis 3 extends the relation between control and social behavior to any kind of relationship or social interaction that results from the implementation of any RM.

4.3.2. The Need to Belong

It is widely accepted that human beings are motivated to be members of groups and to maintain bonds with other people (e.g., Atkinson, et al., 1954; Maslow, 1943; McAdams, & Constantian, 1983) in order to feel protected and nurtured (Stevens & S. Fiske, 1995). Baumeister and Leary (1995) formally defined the need to belong as a "pervasive drive to form and maintain at least a minimum quantity of lasting, positive and significant interpersonal relationships" (p. 497). In support of the claim that belonging is a fundamental human need, the authors (Baumeister and Leary, 1995) reviewed evidence that people form social bonds very easily, without special eliciting circumstances; that they are reluctant to allow social bonds to dissolve even when relationships are destructive (e.g., with abusive partners) or lack functional value (e.g., with neighbors); that much of people's cognitive processing is dedicated to interpersonal interactions; that people experience positive emotions (e.g., love and happiness) in conditions of high belongingness, and negative emotions (e.g., anxiety, depression, jealousy, guilt, loneliness) under conditions of deprivation; and that, when chronically deprived of belongingness, people suffer higher levels of physical and mental illness, and become more prone to crime and suicide. According to more recent research (for review see DeWall & Bushman, 2011), socially rejected people show impaired self-regulation (Baumeister, DeWall, Ciarocco, & Twenge, 2005), reduced cognitive performance (Baumeister, Twenge, & Nuss, 2002), lower state self-esteem (Williams, Cheung & Choi, 2000), increased attention to signs of social acceptance (DeWall, Maner & Rouby, 2009), and increased activation of brain regions associated to physical pain (Eisenberger, Lieberman & Williams, 2003).

The need to belong motivates individuals to seek social acceptance (and to avoid social rejection) by promoting their relational value, that is, the "degree to which other people value interacting with and having relationships with him or her" (Leary & Allen, 2011, p. 37). In order to enhance their relational value people try to be likeable, physically attractive, competent, successful, supportive of the group norms (see Leary & Allen, 2011, for a review); and, when socially excluded, they behave more generously towards potential new partners (Maner, DeWall, Baumeister, Schaller, 2007). People feel accepted when their perceived

relational evaluation by others is high, but rejected when their perceived relational evaluation is low (Leary, 2001).

It has been suggested that people have standards for assessing their relational value in order to feel included, and that these standards vary between individuals and relationships (Leary, 2001). However, it is not clearly specified what these standards consist of. Previous studies have demonstrated that individuals rely on the relational qualities of their partners—i.e., on the RMs they apply to the relationship with their partners—rather than on individual attributes, to formulate social intentions about them (A. Fiske & Haslam, 1997), as well as to think and remember about them (A. Fiske, 1993; A. Fiske, 1995; A. Fiske, Haslam & S. Fiske, 1991). In light of these results, I propose that RMs are important standards for evaluating relational partners. For any positive bond to be established and maintained, it is necessary that relationship partners manage to apply the same RM in the same way to their interactions across time, i.e., to achieve RelComp as their interactions unfold. Hence, relational partners must evaluate one another regarding each other's ability and willingness to apply the same RMs in order to determine whether it is possible and desirable to continue relating with each other. The experience of RelComp informs each participant that the partner is acting in a desirable way and, likewise, that the participant himself is acting in a way that the partner finds desirable. More specifically, when one participant complements a previous action by the partner according to a shared RM, he is assigned positive relational value by the partner. On the other hand, by complementing the action of the participant with a subsequent action, the partner validates the participant's previous action and, thus, communicates his positive evaluation of the participant as relational partner. In other words, a complementary (or non-complementary) response by the participant is both a sign of his positive (or negative) relational value, and a sign of his positive (or negative) relational evaluation of the partner. In sum, people seek approval and belonging by complementing the actions of others, feel approved and included when others complement their actions, anticipate rejection when they fail to complement the actions of others, and feel rejected or devalued when others do not complement their actions. More formally:

> **Hypothesis 4**: Participant's sense of belonging, i.e., perceived relational value, is higher in complementary interactions than in non-complementary interactions.

Notice that Baumeister and Leary's (1995) definition of the need to belong emphasizes lasting, positive and significant relationships, which are typically, although not exclusively,

CS relationships. Hypothesis 4, however, implies that the need to belong can be fulfilled in relationships that are structured according to any of the four RMs.

4.3.3. The Trust Motive

From a simple online purchase to a marriage, trust is an essential ingredient for initiating and sustaining well-functioning relationships both among lasting partners and strangers (Simpson, 2007). Perhaps due to its omnipresence in human social life, trust has been extensively studied from different perspectives and scientific disciplines (for overviews see Rousseau, Sitkin, Burt & Camerer, 1998; Simpson, 2007; Thielmann & Hilbig, 2015). However, the motivational basis of trust is still object of debate. Most theoretical accounts in economics and psychology view trust as a means to obtain desired outcomes, once the trustee makes a response (e.g., Berg, Dickhaut, & McCabe, 1995; Holmes & Rempel, 1989; Kramer & Carnevale, 2001; Mayer, Davis & Schoorman, 1995; Wieselquist, Rusbult, Foster & Agnew, 1999). The underlying assumption is that people are rational actors who analyze the risk of betrayal and probabilities of reciprocation by the trustee, and weigh the costs of not trusting against the potential benefits of their trust being reciprocated (Dunning, Anderson, Schlösser, Ehlebracht, & Fetchenhauer, 2014; Malhotra, 2004). More recent perspectives, on the other hand, view trust as a core human motive, in that individuals are motivated not only to see other people as benevolent (S. Fiske, 2004, 2008; Stevens & S. Fiske, 1995), but also to engage in trusting behavior, even when they do not believe in the benevolence of the partner (Dunning, et al., 2014).

Given the large number of conceptualizations of the construct, there is no universally accepted scholarly definition of trust (Rousseau, et al., 1998, p. 394; Thielmann & Hilbig, 2015, p. 250). Some scholars view trust as a set of cognitions comprising implicit attitudes towards the partner (e.g., Murray, Pinkus, Holmes, et al., 2011), or conscious beliefs about the partner's concern with the trustor's welfare, willingness to support the trustor's best interests, and commitment with the relationship (e.g., Holmes & Rempel, 1989; Kramer & Carnevale, 2001; Murray, et al, 2011; Rousseau, et al., 1998; Wieselquist, et al., 1999). These views emphasize evaluations of *partner trustworthiness*. Other proposals, on the other hand, emphasize *trust behavior*: "a decision about becoming vulnerable to another person's exploitation to possibly achieve a benefit" (Dunning, et al., 2014, p. 123). In fact, the (a) willingness to make oneself vulnerable to the actions of the partner, and the underlying (b) beliefs or expectations about the partner's benevolence are two components of trust that are

widely consensual in the literature (Lewicki, McAllister, Bies, 1998; Mayer, Davis & Schoorman, 1995; Rousseau, et al., 1998; Thielmann & Hilbig, 2015).

Vulnerability is a property of the situation in which each party depends on the actions of the partner to obtain better outcomes than what he could achieve alone, and the trustee will be better off if he betrays than if he reciprocates trust (Balliet & Van Lange, 2013; Kelley, Holmes, Kerr, et al., 2003; Thielmann & Hilbig, 2015). For example, in a version of the trust game (also called investment game, e.g., Berg, et al., 1995; Dunning, et al., 2014), participants must decide whether to keep or to give an amount of money (e.g., 5€) to a stranger. If they choose to give the money, it will be multiplied (e.g., 5€ x 4 = 20€), and the second player will be asked to choose whether to give 10€ back to the first player or to keep 20€ to himself. Hence, to make oneself vulnerable means to engage in a course of action (e.g., giving the 5€ to the second player) that exposes the trustor to the risk of losing something valuable, in case of betrayal or exploitation by the trustee, and consequently, of obtaining outcomes that are worse than those one would have gained if he had not trusted.

Decisions to become vulnerable by engaging in trust behavior are usually based on risk analysis and expectations about partner trustworthiness or benevolence (Dunning, et al., 2014). The risks of trusting can be determined, for instance, by the amount of the potential loss if trust is betrayed. Hence, individuals are more likely to trust, when the potential loss is low rather than high (e.g., Malhotra, 2004). Trustworthiness expectations, on the other hand, are based on different sources of information about the partner's intentions (for a review see Thielmann & Hilbig, 2015). These sources include prior trust experiences with the same partner (e.g., Wieselquist, et al., 1999) or with different partners in similar situations (e.g., Bolton, Katok & Ockenfels, 2004), in which the trustor's vulnerability was, or was not exploited by the partner. Other sources of information about the partner's intentions are social cues, such as, facial features of the trustee (e.g., Stirrat, & Perrett, 2010; Todorov, Pakrashi & Oosterhof, 2009), group membership of the trustee (e.g., Foddy, Platow, & Yamagishi, 2009), or intuitive moral judgments by the trustee (Everett, Pizarro & Crockett, 2016).

In line with the theoretical approach presented in this work, I propose that trust behavior, as defined above, is a particular case of pursuing RelComp in situations of vulnerability. To illustrate, in a trust game where both players cooperate a relational pattern is produced. This pattern is constituted by the part of the trustor—e.g., giving 5€ to the player 2, and the part of the trustee—e.g., giving 10€ back to player 1, and is an implementation of the relational

model EM—50:50 division of resources. The basis for the risky choice of performing one's part in situations of vulnerability is based on the assumption that the other applies the same RM in the same way to the interaction, and consequently, the expectation that she will do her part of the intended pattern. Given that RMs are standards for generating action, taking the risk of doing one's part is based on expectations that the other abides by the same relational standards as oneself.

One implication of this conceptualization is that trustworthiness expectations are not conceptually different from expectations about the partner's relational reliability, i.e., the partner's willingness and ability to coordinate by complementing a previous action performed by oneself, according to a shared RM. Such kind of expectations is based, among other sources of information, on prior direct or observed interactions with that person. To the extent that any social interaction is an opportunity for participants to demonstrate their relational standards by implementing a RM, expectations about relational reliability, hence, trustworthiness, should be formed in interactions of all kinds, regardless of vulnerability. As common interactions unfold, the experience of RelComp (or lack thereof) informs each participant that the partner applies the same (or different) standards to their relationship, and is, therefore, a reliable relational partner. In other words, complementary actions are a sign of trustworthiness. Hence:

> **Hypothesis 5**: Participant's trust in the partner, i.e., perceived trustworthiness of the partner, should be higher when the partner's actions are complementary to the participant's previous action, than when they are non-complementary.

4.4. Overview of the Studies

The following studies were designed to test the hypotheses that participants who engage in complementary interactions experience higher sense of Control, Belonging, and Trust in the partner, than those who participate in non-complementary interactions. Furthermore, I also hypothesized that complementary interactions are associated with more positive affect and less negative affect than non-complementary interactions.

In the experimental paradigm employed, participants read scenarios describing interactions between two characters: one initiator and one respondent. In all studies the action of the respondent was either complementary or non-complementary to the action of the

initiator. Then, participants placed themselves in one of the character's shoes and rated their positive and negative affect, perceived control, sense of belonging and trust in the partner.

The scenarios varied according to the specific goals of each study. The goal of Study 1 was to disentangle the effects of RelComp from the effects of doing what is expected. Studies 2 and 3 aimed to rule out the effects of gaining the tangible benefits of coordination from the effects of RelComp. Since in studies 1 to 3 participants took the perspective to the initiator, their affect, sense of control, sense of belonging, and trust, were contingent on whether the partner's action was complementary or non-complementary. Hence, Studies 4a and 4b investigated whether the predicted effects of RelComp would also be observed if participants' affect, sense of control, sense of belonging and trust were contingent on whether their own action was complementary or non-complementary to a previous action by the partner. To this end, participants were asked to take the perspective of the respondent, instead of the initiator. Studies 4a and 4b also explored the effects of controllability attributions when responses are non-complementary.

4.4.1. Dependent Variables

Control, Belonging and Trust, are usually measured as stable individual dispositions, such as the desire for control (Burger & Cooper, 1979), need to belong (Leary, Kelly, Cottrell & Schreindorfer, 2013), or generalized trust (Yamagishi & Yamagishi, 1994). In the current studies Control, Belonging and Trust were operationalized to reflect how the participant feels in the course of a particular social interaction. More specifically, Control was defined as participant's sense of contingency between their actions and the actions by the partner or the outcomes of the interaction; Belonging meant participant's sense of being approved, valued and included by the partner; and Trust meant actual trust in the partner.

At this point, it is necessary to make a distinction between two types of trust that were measured in the five studies: (a) the trust of the participant (in the shoes of either the initiator or the respondent) in the partner, where the participant is the trustor; and (b) the participant's perception of being trusted by the partner, where the participant is the trustee. I will address the first as Trust and the second as Meta-trust. Trust and Meta-trust relate differently with RelComp depending on whether the participant is the initiator or the respondent. I proposed that complementary actions are perceived as signs of trustworthiness. Hence, RelComp should only affect the perceived trustworthiness of the one who either succeeds or fails to complement, i.e., the respondent. In other words, in Studies 1 to 3, where the participant takes

the perspective of the initiator, RelComp should affect Trust in the partner (i.e., the respondent). In Studies 4a and 4b, where the participant takes the perspective of the respondent, RelComp should affect (the respondent's) Meta-trust. On the other hand, the initiator's Meta-trust (in Studies 1 to 3), and the respondent's Trust (in Studies 4a and 4b) were measured as exploratory variables.

Additional Dependent Variables. Two additional variables were measured in the five studies: Liking for the partner and coordination Maintenance. Specific predictions were made for Maintenance but not for Liking. Liking is a positive evaluation of an object, event, or person more than a mere affective response (Kruglanski, Jasko, Chernikova, et al., 2015). For that reason, it is possible that liking the other person is something stable, which is more dependent on past experiences, or on desirable traits, than on specific interactions with the person. One the other hand, is it also possible that RelComp has an impact on such evaluations.

Maintenance is the degree of effort required for coordination (Finkel, Campbell, Brunell, et al., 2006). If all coordination requires RelComp, then, complementary interactions should demand lower maintenance that non-complementary interactions. Hence:

Hypothesis 6: Participant's experience lower maintenance in complementary social interactions than in non-complementary interactions.

4.5. Study 1

The goal of this study was to test the general hypotheses that during a social interaction the initiator will experience higher Positive Affect, lower Negative Affect, higher interaction-specific sense of Control, higher interaction-specific sense of Belonging, higher Trust in the partner and lower Maintenance when the partner's response is complementary, rather than non-complementary.

In addition, in real life RelComp is usually confounded with doing what is expected, since the complementary response is usually the expected response, due to shared knowledge about relationships and social norms. Therefore, a second goal of the current study was to disentangle the effect of doing what is expected from the effect of RelComp. To this end, two versions of the CS and MP scenarios were developed. In one version the complementary response was expected by the initiator and the non-complementary response was unexpected.

In the second version, the complementary response was unexpected by the initiator while the non-complementary response was expected.

I predicted that the initiator would experience higher Positive Affect, Control, Belonging and Trust in the respondent, and lower Negative Affect and Maintenance, when responses were complementary, rather than non-complementary, and both when expected or unexpected. Furthermore, I also explored the extent to which RelComp and Expectation affected the initiator's Meta-trust (i.e., the imitator's perception of being trusted by the respondent), and Liking of the respondent during the interaction.

4.5.1 Methods

4.5.1.1. Participants

Portuguese speaking participants were recruited by convenience via social media and e-mail, and were offered participation in a lottery awarding five 70€ vouchers for completing a 15-minute online questionnaire. The questionnaire was initiated by 247 participants, and completed by 134, 97.8% of which were Portuguese, 69% female, with ages between 18 and 70 years-old (M^{age} = 32.5, *SD* = 12.4). Forty-one percent (40.5%) had bachelor degree, 35.1% less than a bachelor degree, 18.3% a master degree, and 4.6% a doctoral degree.

4.5.1.2. Design

This was a 2(CS vs. MP) x 2(Complementary vs. Non-complementary) x 2(Expected RelComp vs. Unexpected RelComp) mixed factorial design. Each participant was randomly assigned to two out of eight scenarios describing an interaction between two characters: one initiator and one respondent. The eight scenarios resulted from the combination of three variables: the RM implemented by the initiator (RM: CS vs. MP), the complementary or non-complementary reply of the respondent (RelComp: Complementary vs. Non-complementary), and whether the complementary response was expected or unexpected by the initiator (Expectation: $\text{Expected}_{\text{RelComp}}$ vs. $\text{Unexpected}_{\text{RelComp}}$). RelComp and Expectation were manipulated between subjects and RM was manipulated within-subjects, that is, each participant was exposed to one CS scenario and one MP scenario, in randomized order. Notice that, this way the levels of RelComp and Expectation were held constant within participants.

4.5.1.3. Materials and Procedure

The online data collection software Qualtrics was used to design the questionnaire and collect the answers. Participants accessed the online questionnaire through a link distributed via e-mail and social media. The beginning of the questionnaire contained information about the goal of the study, the voluntary nature of the participation, the confidentiality and anonymity of their answers, and the contact of the main investigator for further questions. Participants were told that this was a study about interpersonal relationships, which investigated how other people's responses to our actions influenced our perception of the relationship with those people.

After giving informed consent, each participant was exposed to two scenarios describing an interaction between two male characters: one initiator and one respondent. Each scenario was designed according to the experimental conditions. After reading each scenario and before responding to the dependent measures, participants were asked to "put themselves in the first character's shoes" and to write three ideas about how they would feel about the response of the second character if they were in that situation. This procedure had the purpose of increasing the likelihood and the strength of perspective taking by the participants. Next, participants were told that, according to research, people are capable of forming impressions and judgments about the relationships of other people, based on very little information. Then, they were asked to put themselves in main character's shoes again, to recall how they would feel about the second character's response, and to respond to the dependent measures and manipulation checks. The dependent measures were Liking for the respondent, Positive Affect, Negative Affect, Maintenance, Control, initiator's Trust in the respondent, initiator's Meta-trust, Belonging; and the manipulation checks were Perceived Relational Complementarity and Expectation about the partner's response.

A detailed debriefing about the goals of the study and the notification of the lottery winners to collect the prize were sent by e-mail.

Scenarios. Two types of scenarios were presented to participants: one described an interaction about the painting of an apartment, and the other described an interaction about the payment of an apartment rent. All scenarios had the same structure: (a) a description of the context of the interaction, (b) the initiation of the interaction by the first character, (c) the response by the second character, and (c) a statement describing the actual actions taken by

the two characters after the interaction (see English description of all scenarios in appendix H).

The description of the interaction context introduced the characters, their relationship, the aspect of the relationship that required coordination between the two, and the RM (CS vs. MP) to be implemented to achieve coordination. The aspects to be coordinated were: the painting of an apartment, in the CS scenario, and the payment of an apartment rent, in the MP scenario. RMs were specified according to the experimental condition by describing how each aspect was going to be coordinated among the characters. For instance, one friend would help the other paint the apartment, in the CS scenario, and the tenant would make a bank transfer, in the MP scenario.

Furthermore, the interaction description also manipulated the Expectation of the first character about the respondent. This was achieved by introducing one sentence in the context description in the $\text{Unexpected}_{\text{RelComp}}$ condition containing information about the past behavior of the respondent in similar contexts. For example, in the $\text{Expected}_{\text{RelComp}}$ MP scenario the two characters and their relationship were introduced: "*Mr. António is the landlord of an apartment which is rented to Rodrigo. Since Mr. António changed his bank account recently, he asked Rodrigo to wait for his phone call with the new bank account number, before making the payment. This month's rent is due today, and Mr. António calls Rodrigo to give him the new bank account number*". In the $\text{Unexpected}_{\text{RelComp}}$ MP scenario the sentence underlined was added: "*Mr. António is the landlord of an apartment which is rented to Rodrigo. Rodrigo did not pay the rent in the last three consecutive months. Since Mr. António changed his bank account recently* [. . .]".

After the context description, the first character initiated the interaction by making a request implementing the relational model corresponding to the experimental condition of RM (e.g.: "- *Hi Mr. Rodrigo. I am calling you to give you my new account number. I would like you to make the payment of the rent to that account from now on*").

The response of the second character differed according to the RelComp condition. In the Complementary condition the response was cooperative (e.g., "*Of course Mr. António. Just give me the number and I'll do it right away!*"). In the Non-complementary condition the response was uncooperative (e.g., "*Mr António, I'm going to keep the new number, but can't afford this month's rent. Give me until next month…*).

The final statement was used to eliminate ambiguity about the actions of the characters following the second character's response, or any suspicion that the complementary response, when unexpected, could have been a lie. For example, in the Complementary MP condition the sentence was "*Mr. António communicates the new account number to Rodrigo. By the end of the day he confirms that the payment is in the new account*", whereas in the Non-complementary scenario it was "*Mr. António communicates the new account number to Rodrigo. By the end of the day he confirms that Rodrigo did not make the payment*".

Measures. Participants were asked to indicate how much they agreed with 42 items (see appendix I for a full description of the Portuguese version of the items) on a 7-point Likert scale (1 – strongly disagree, 2 – disagree, 3 – partially disagree, 4 – neither agree nor disagree, 5 – partially agree, 6 – agree, 7 – strongly agree). Each measure is described next in the same order as they were presented to participants.

Liking. Liking was measured with one item (e.g., "Overall I (Sr. António) like Rodrigo"; M = 5.66, SD = 1.22, Min. = 1, Max. = 7).

Affect. Affect was measured with one item for positive affect (M = 4.23, SD = 2.18, Min. = 1, Max. = 7; e.g., "Rodrigo's response to my action put me (Mr. António) in a positive mood") and another item for negative affect (M = 3.47, SD = 2.22, Min. = 1, Max. = 7; e.g., "Rodrigo's response to my action put me (Mr. António) in a negative mood"). The items were inspired in Larsen, Norris, McGraw and Cacioppo's (2009) evaluative space grid for positivity and negativity. Larsen and colleague's measure assumes that positive and negative affect are two orthogonal dimensions, that is, the same stimulus can evoke both positive and negative affective reactions simultaneously (cf. Watson & Tellegen, 1985). Therefore, they ask participants how positive *and* how negative they felt about a stimulus (Larsen, et al., 2009).

Maintenance. Finkel and colleagues' (2006) developed four items to measure whether one particular interaction was high- (i.e., effortful and inefficient) or low- (i.e., efficient and effortless) in maintenance effort. The original items were translated from English to Portuguese by one researcher with expertise on both languages and with good knowledge of the research concepts. The translated items were adapted to the scenarios and used in this study ($\alpha_{\text{first scenario}}$ = .84, $\alpha_{\text{second scenario}}$ = .85, M = 2.99, SD = 1.45, Min. = 1.00, Max. = 6.50; e.g., "I (Mr. António) found our interaction frustrating", or "It was easy for me (Mr. António)

and Rodrigo to coordinate our efforts"; the latter sentence was reverse-scored). A second translator performed the back-translation of the adapted items to English. The first translator did the comparative analysis between the back-translated and the original items. No content discrepancies between the two versions were detected.

Control. My goal was to measure perceived personal control over the desired outcomes of a particular social interaction. Some scales available in the literature measure individual differences in the desire for control over events (e.g., Burger & Cooper, 1979), and the majority assesses beliefs about internal or external sources of control over events. Some of these instruments address one's beliefs about the control ability of the average individual (e.g., Rotter, 1966; Mirels, 1970), others are more specifically about one's perceived sense of personal control over events in general (Barrenberg, 1987; Levenson, 1973), or in specific domains, such as internal states (Pallant, 2000), health (e.g., Lau & Ware, 1981) or academic achievement (e.g., Trice, 1985). Although, some scales measure perceived control in interpersonal domains (e.g., Connell, 1985; Paulhus, 1983), they are about social relationships in general. To my knowledge there are no measures of perceived control in specific social interactions. For this reason, I developed a scale assessing control experienced in a social interaction.

I defined social-interaction-specific control as the ability of individuals to evoke actions by the partner that are consistent with their own goals. Skinner (1996) distinguished between agents, ends, and means of control, and argued that different constructs of control usually focused either on agents-means relations, means-ends relations or agents-ends relations. Agent-means relations refer to the ability of the individual or group to produce one particular course of action (e.g., efficacy expectations, Bandura, 1977); means-ends relations refer to whether one course of action effectively produces the outcome desired (or avoids the outcome undesired) by the agent (e.g., outcome expectations, Bandura, 1977); and agent-means relations refer to the agent's ability to produce a desired outcome or avoid and undesired one (e.g., subjective control, Skinner 1985). Hence, after testing initial versions of the present scale on two previous experiments, a six item measure addressing the three relations was developed ($\alpha_{\text{first scenario}} = .92$, $\alpha_{\text{second scenario}} = .93$, $M = 4.34$, $SD = 1.82$, Min. = 1.00, Max. = 7.00): two items measuring agent-ends relations (e.g., "I (Mr. António) did not get the response that I wanted from Rodrigo", reverse-scored); two items addressing agent-means relations (e.g., "I (Mr. António) managed to relate to Rodrigo in order to achieve the results

that I intended"); and two items assessing means-ends relations (e.g., "I (Mr. António) feel that my actions caused Rodrigo to respond the way I wished for". The items were first developed in English and then translated to Portuguese by a researcher with good knowledge of the concept. The backtranslation and comparative analysis followed the procedure adopted for Maintenance. No content discrepancies between the two versions were detected.

Trust. The most common trust measures assess general expectancies that other people can be relied upon (e.g., Rotter, 1967; Twenge, et al., 2007, Study 6; Yamagjshi, 1986; Yamagishi &Yamagishi, 1994), or current trust levels in ongoing close relationships (e.g., Rempel, Holmes & Zanna, 1985). A five-item measure, however, was used by Klapwijk and Van Lange (2009) to assess social-interaction-specific trust. This measure was adapted for the current study. The five items were first translated to Portuguese by one researcher with expertise on both languages and with good knowledge of the research concepts, and then, adapted to measure the initiator's Trust on the respondent ($\alpha_{\text{first scenario}} = .90$, $\alpha_{\text{second scenario}} = .91$, $M = 4.11$, $SD = 1.46$, Min. = 1.00, Max. = 7.00). The same items were then rephrased into a second version measuring the initiator's Meta-Trust (i.e., initiator's perception of being trusted by the respondent; $\alpha_{\text{first scenario}} = .79$, $\alpha_{\text{second scenario}} = .79$, $M = 4.65$, $SD = 0.95$, Min. = 1.00, Max. = 7.00). The items focused on self-reported trust (e.g., "I (Sr. António) trust Rodrigo completely") or meta-trust (e.g., "Rodrigo trusts me (Sr. António) completely); and dependability (e.g., "If push comes to shove, I (Sr. António), do not want to rely on Rodrigo") or meta-dependability (e.g., "If push comes to shove, Rodrigo does not want to rely on me (Sr. António)"; reverse-scored). The backtranslation and comparative analysis followed the procedure adopted for Maintenance and Control. No content discrepancies between the two versions were detected.

Belonging. The literature offers scales assessing the individual differences in the need to belong (e.g., Hagerty, & Patusky, 1995; Lee & Robbins, 1995; Leary, Kelly, Cottrell & Schreindorfer, 2013; Nichols & Webster, 2013) or current general sense of belonging (e.g., Hagerty, & Patusky, 1995; Malone, Pillow & Osman. 2012). Although, to my knowledge, no measures of social-interaction-specific sense of belonging have been validated so far, some authors have used single items to measure participants' sense of acceptance or rejection during experiments as manipulation checks (e.g., Bourgeois & Leary, 2001) or dependent variables (e.g., Twenge, Baumeister, DeWall, et al., 2007; Williams, et al., 2000). Hence, I developed a five-item scale of social-interaction-specific sense of belonging, which focused

on different aspects of experienced belongingness that are addressed in other measures ($\alpha_{\text{first scenario}}$ = .88, $\alpha_{\text{second scenario}}$ = .92, *M* = 4.69, *SD* = 1.32, Min. = 1.00, Max. = 7.00). One item measured sense of rejection by the other ("I (Sr. António) feel rejected by Rodrigo", reverse-scored; cf. Bourgeois & Leary, 2001, Malone et al., 2012). Another item assessed sense of closeness to the other ("I (Sr. António) feel close to Rodrigo"; cf. Malone et al., 2012, Lee & Robbins, 1995). Finally, three items addressed positive evaluation and approval of oneself by the others (e.g., "I (Sr. António) feel Rodrigo values me as a person", cf. Hagersty & Patusky, 1995, Williams et al., 2000). The items were first developed in English and then translated to Portuguese by a researcher with good knowledge of the concept. The backtranslation and comparative analysis followed the procedure adopted for Maintenance, Control and Trust. No content discrepancies between the two versions were detected.

Perceived RelComp. As manipulation check, I developed 13 items assessing perceptions of RelComp ($\alpha_{\text{first scenario}}$ = .94, $\alpha_{\text{second scenario}}$ = .95, *M* = 4.37, *SD* = 1.38, Min. = 1.08, Max. = 7.00). The scale included seven items (see items 29–35, Appendix I) measuring complementarity of the characters' action (e.g., "My (Sr. António's) action and Rodrigo's action meshed well"), and six items (see items 36–41, Appendix I) measuring complementarity of the characters' cognitive perceptions of the relationship (e.g., "Rodrigo and I (Sr. António) have similar expectations about the kind of relationship we have with each other"). The items were first developed in English and reviewed by a native speaker with good knowledge of the concept. The English version was, then, translated to Portuguese by a native speaker with good knowledge of the concept. The backtranslation and comparative analysis followed the procedure adopted for Maintenance, Control, Trust and Belonging. No content discrepancies between the two versions were detected.

Expectation. One items (e.g., "I (Mr. António) was expecting Rodrigo's response" was used as manipulation check of Expectation (*M* = 4.39, *SD* = 1.67, Min. = 1, Max. = 7).

A mean score of the items composing each scale, i.e., Maintenance, Control, initiator's Trust, initiator's Meta-trust, Belonging and Perceived RelComp, was computed and treated as dependent variable.

4.5.2. Results

Correlations between all measures are shown in Table 5. Perceived RelComp, Positive and Negative Affect, Control, Belonging, Trust and Maintenance correlated strongly with one

another ($r \geq |.50|$). The Expectation manipulation check, Meta-trust and Liking did not correlate or correlated weakly ($r < |.30|$) to moderately ($r < |.50|$) with the other measures.

Table 5 – Pearson correlations between all measures

		1	2	3	4	5	6	7	8	9	10
RelComp	1	1.00	**.30****	**.80****	**-.76****	**.86****	**.78****	**.77****	**.37****	**-78****	**.33****
Expectation	2	.21*	1.00	**.19***	**-.20***	**.22****	**.18***	**.30****	**.32****	**-.12**	**-.06**
Pos. Affect	3	.79**	.08	1.00	**-.86****	**.87****	**.69****	**.68****	**.30****	**-.78****	**.36****
Neg. Affect	4	-.84**	-.06	-.86**	1.00	**-.80****	**-.62****	**-.63****	**-.22****	**.75****	**-.25****
Control	5	.90**	.09	.88**	-.87**	1.00	**.70****	**.68****	**.31****	**-.78****	**.28****
Belonging	6	.78**	.17	.56**	-.60**	.63**	1.00	**.79****	**.49****	**-75****	**.48****
Trust	7	.74**	.19*	.59**	-.61**	.60**	.84**	1.00	**.50****	**-.67****	**.46****
Meta-trust	8	.29**	.18*	.13	-.18*	.19*	.43**	.49**	1.00	**-.30****	**.27****
Maintenance	9	-.84**	-.12	-.79**	.80**	-.86**	-.69**	-.69**	-.30**	1.00	**-.43****
Liking	10	.26**	.15	.23**	-.16	.18*	.34**	.49**	.49**	-.36**	1.00

Note: * $p < .05$; ** $p < .01$. Correlations for the first scenario of each participant are reported in the upper part of the table ($n = 158$). Correlations for the second scenario of each participant are reported in the lower part of the table ($n = 134$).

Three cases that deviated more than 3.3 standard deviations from the mean were considered outliers (Tabachnick& Fidell, 2014) and removed from the analysis.

A 2(RM: CS vs. MP) x 2(RelComp: Complementary vs. Non-complementary) x 2(Expectation: $Expected_{RelComp}$ vs. $Unexpected_{RelComp}$) Multivariate Repeated Measures GLM was conducted on all manipulation checks and dependent variables using IBM SPSS 23, with RM as within-subjects factor and RelComp and Expectation as between-subjects factors. Significance tests were estimated with a 95% CI.

4.5.2.1. Preliminary analyses

Multivariate tests showed statistically significant main effects of RelComp, $F(10, 118) = 72.09$, $p < .001$, $\eta_p^2 = .86$, Expectation, $F(10, 118) = 3.95$, $p < .001$, $\eta_p^2 = .25$, and RM, $F(10, 118) = 13.62$, $p < .001$, $\eta_p^2 = .54$; significant interaction effects between RelComp and Expectation, $F(10, 118) = 13.55$, $p < .001$, $\eta_p^2 = .54$, RelComp and RM, $F(10, 118) = 6.01$, $p < .001$, $\eta_p^2 = .34$, RM and Expectation, $F(10, 118) = 2.89$, $p = .003$, $\eta_p^2 = .20$; and a marginally significant three-way interaction, $F(10, 118) = 1.90$, $p = .052$, $\eta_p^2 = .14$.

The Univariate tests of the main effects, two- and three-way interactions on each manipulation check and dependent variable are presented in Table 6. Tables 7 and 8 display estimated marginal means, standard errors, significance tests and effect sizes for the main effects, two- and three-way interactions on each manipulation check and dependent variable. Post-hoc significance tests were estimated with Bonferroni correction.

Table 6 – Univariate tests of main effects and two- and three-way interactions on each manipulation check and dependent variable

	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2
	RelComp				Expectation				RM							
RelComp	1	**272.81**	**<.001**	**.68**	1	**18.67**	**<.001**	**.13**	1	0.24	>.25	-				
Expectation	1	**4.96**	**.028**	**.04**	1	<.001	>.25	-	1	0.93	>.25	-				
Positive Affect	1	**445.33**	**<.001**	**.78**	1	**5.24**	**.024**	**.04**	1	**4.84**	**.030**	**.04**				
Negative Affect	1	**486.09**	**<.001**	**.79**	1	3.62	.059	.03	1	**7.22**	**.008**	**.05**				
Control	1	**447.76**	**<.001**	**.78**	1	**10.95**	**<.001**	**.08**	1	3.15	.078	.02				
Belonging	1	**82.74**	**<.001**	**.40**	1	**25.37**	**<.001**	**.17**	1	**8.80**	**.004**	**.07**				
Trust	1	**73.90**	**<.001**	**.37**	1	**24.03**	**<.001**	**.16**	1	**42.23**	**<.001**	**.25**				
Meta-trust	1	**4.25**	**.041**	**.03**	1	**4.14**	**.044**	**.03**	1	**8.77**	**.004**	**.07**				
Maintenance	1	**188.41**	**<.001**	**.60**	1	**28.30**	**<.001**	**.18**	1	1.78	.185	.01				
Liking	1	**4.84**	**.030**	**.04**	1	**18.74**	**<.001**	**.13**	1	**90.16**	**<.001**	**.42**				
Error	127				127				127							
	RelComp*Expectation				RelComp*RM				Expectation*RM				RelComp*Expectation*RM			
RelComp	1	**8.06**	**.005**	**.06**	1	1.13	>.25	-	1	0.78	>.25	-	1	2.98	.087	.02
Expectation	1	**104.00**	**<.001**	**.45**	1	1.17	>.25	-	1	0.83	>.25	-	1	**8.77**	**.004**	**.07**
Positive Affect	1	0.77	>.25	-	1	**12.66**	**.001**	**.09**	1	0.81	>.25	-	1	0.60	>.25	-
Negative Affect	1	2.32	.130	.02	1	3.75	.055	.03	1	0.03	>.25	-	1	2.10	.150	.07
Control	1	1.78	.185	.01	1	**8.96**	**.003**	**.07**	1	**5.00**	**.027**	**.04**	1	0.05	>.25	-
Belonging	1	0.72	>.25	-	1	**28.90**	**<.001**	**.19**	1	0.24	>.25	-	1	0.20	>.25	-
Trust	1	**6.42**	**.012**	**.05**	1	1.69	.196	.01	1	0.53	>.25	-	1	0.03	>.25	-
Meta-trust	1	0.29	>.25	-	1	**8.36**	**.005**	**.06**	1	0.90	>.25	-	1	0.39	>.25	-
Maintenance	1	0.89	>.25	-	1	**6.47**	**.012**	**.05**	1	**6.12**	**.015**	**.05**	1	1.08	>.25	-
Liking	1	0.33	>.25	-	1	0.05	>.25	-	1	**7.76**	**.006**	**.06**	1	0.51	>.25	-
Error	127				127				127				127			

Table 7 – Estimated marginal means and standard errors for the main effects and the RelComp*Expectation interaction, and effect sizes of post-hoc tests on the RelComp*Expectation interaction.

	Comp		Non-comp		Expected RelComp		Unexpected RelComp		Communal Sharing		Market Pricing		Expected RelComp					Unexpected RelComp						
													Comp		Non-comp		Comp vs. Non-Comp	Comp		Non-comp		Comp vs. Non-Comp	Comp vs. Comp	Non-Comp vs. Non-Comp
	(*n* = 66)		(*n* = 65)		(*n* = 66)		(*n* = 65)		(*n* = 131)		(*n* = 131)		(*n* = 34)		(*n* = 32)			(*n* = 32)		(*n* = 33)				
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	η_p^2	*M*	*SE*	*M*	*SE*	η_p^2	η_p^2	η_p^2
RelComp	**5.40**^{a}	0.09	**3.31**^{b}	0.09	**4.63**^{a}	0.09	**4.08**^{b}	0.09	**4.37**^{a}	0.07	**4.34**^{a}	0.07	**5.85**^{a}	0.12	**3.40**^{b}	0.13	.60	**4.94**^{c}	0.13	**3.22**^{b}	0.13	.42	.17	-
Expectation	**4.55**^{a}	0.13	**4.12**^{b}	0.14	**4.34**^{a}	0.13	**4.34**^{a}	0.13	**4.40**^{a}	0.11	**4.27**^{a}	0.12	**5.52**^{a}	0.19	**3.16**^{b}	0.19	.38	**3.58**^{c}	0.19	**5.09**^{d}	0.19	.20	.29	.29
Pos. Affect	**6.02**^{a}	0.12	**2.39**^{b}	0.12	**4.41**^{a}	0.12	**4.01**^{b}	0.12	**4.32**^{a}	0.09	**4.10**^{b}	0.11	**6.29**^{a}	0.17	**2.52**^{b}	0.17	.66	**5.75**^{c}	0.17	**2.27**^{b}	0.17	.62	.04	-
Neg. Affect	**1.65**^{a}	0.12	**5.41**^{b}	0.12	**3.36**^{a}	0.12	**3.69**^{a}	0.12	**3.38**^{a}	0.10	**3.67**^{b}	0.11	**1.35**^{a}	0.17	**5.38**^{b}	0.17	.69	**1.94**^{c}	0.17	**5.44**^{b}	0.17	.62	.04	-
Control	**5.84**^{a}	0.10	**2.80**^{b}	0.10	**4.56**^{a}	0.10	**4.08**^{b}	0.10	**4.24**^{a}	0.08	**4.40**^{a}	0.09	**6.17**^{a}	0.14	**2.94**^{b}	0.15	.67	**5.50**^{c}	0.15	**2.66**^{b}	0.14	.61	.08	-
Belonging	**5.32**^{a}	0.10	**4.00**^{b}	0.10	**5.03**^{a}	0.10	**4.29**^{b}	0.10	**4.81**^{a}	0.09	**4.51**^{b}	0.09	**5.75**^{a}	0.14	**4.30**^{b}	0.15	.28	**4.89**^{c}	0.15	**3.69**^{d}	0.15	.21	.12	.06
Trust	**4.77**^{a}	0.12	**3.37**^{b}	0.12	**4.47**^{a}	0.12	**3.67**^{b}	0.12	**4.44**^{a}	0.10	**3.70**^{b}	0.10	**5.38**^{a}	0.16	**3.56**^{b}	0.17	.33	**4.16**^{c}	0.17	**3.17**^{b}	0.16	.13	.18	-
Meta-trust	**4.77**^{a}	0.08	**4.53**^{b}	0.08	**4.77**^{a}	0.08	**4.53**^{b}	0.08	**4.79**^{a}	0.07	**4.51**^{b}	0.08	**4.92**^{a}	0.12	**4.62**^{a}	0.12	-	**4.62**^{a}	0.12	**4.44**^{a}	0.12	-	-	-
Maintenance	**2.01**^{a}	0.10	**3.96**^{b}	0.10	**2.61**^{a}	0.10	**3.36**^{b}	0.10	**2.92**^{a}	0.08	**3.05**^{a}	0.09	**1.57**^{a}	0.14	**3.65**^{b}	0.14	.46	**2.46**^{c}	0.14	**4.27**^{d}	0.14	.39	.14	.07
Liking	**5.81**^{a}	0.09	**5.52**^{b}	0.09	**5.95**^{a}	0.09	**5.38**^{b}	0.09	**6.16**^{a}	0.07	**5.17**^{b}	0.10	**6.06**^{a}	0.13	**5.84**^{a}	0.13	-	**5.56**^{b}	0.13	**5.20**^{b}	0.13	-	.05	.09

Note: Simple mean comparisons between conditions are identified with superscripts *a*, *b*, *c*, and *d*. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$. See effect sizes of main effects in Table 6.

Table 8 – Estimated marginal means, standard errors and effect sizes for the two- and three-way interactions.

	Comp		Non-comp			Expected RelComp		Unexpected RelComp			Expected RelComp					Unexpected RelComp				
											Comp		Non-comp			Comp		Non-comp		
	(n = 66)		(n = 65)			(n = 66)		(n = 65)			(n = 34)		(n = 32)			(n = 32)		(n = 33)		
	M	*SE*	*M*	*SE*	η_p^2	*M*	*SE*	*M*	*SE*	η_p^2	*M*	*SE*	*M*	*SE*	η_p^2	*M*	*SE*	*M*	*SE*	η_p^2
	Communal Sharing					Communal Sharing										Communal Sharing				
RelComp	^{x}**5.45**^{a}	0.10	^{x}**3.29**^{b}	0.10	*.64*	^{x}**4.61**^{a}	0.10	^{x}**4.13**^{b}	0.10	*.08*	^{x}**5.93**^{a}	0.14	^{x}**3.29**^{b}	0.14	*.58*	^{x}**4.97**^{c}	0.14	^{x}**3.29**^{b}	0.14	*.35*
Expectation	^{x}**4.54**^{a}	0.16	^{x}**4.26**^{a}	0.16	*.01*	^{x}**4.46**^{a}	0.16	^{x}**4.34**^{a}	0.16	-	^{x}**5.76**^{a}	0.22	^{x}**3.16**^{b}	0.23	*.34*	^{x}**3.31**^{c}	0.23	^{x}**5.36**^{d}	0.23	*.24*
Positive Affect	^{x}**6.31**^{a}	0.13	^{x}**2.33**^{b}	0.13	*.79*	^{x}**4.56**^{a}	0.13	^{x}**4.08**^{b}	0.13	*.05*	^{x}**6.59**^{a}	0.18	^{x}**2.53**^{b}	0.18	*.67*	^{x}**6.03**^{c}	0.18	^{x}**2.12**^{b}	0.18	*.65*
Negative Affect	^{x}**1.40**^{a}	0.13	^{x}**5.37**^{b}	0.14	*.77*	^{x}**3.21**^{a}	0.13	^{x}**3.56**^{a}	0.14	-	^{x}**1.18**^{a}	0.19	^{x}**5.25**^{b}	0.19	*.65*	^{x}**1.63**^{a}	0.19	^{x}**5.48**^{b}	0.19	*.62*
Control	^{x}**5.89**^{a}	0.11	^{x}**2.58**^{b}	0.11	*.77*	^{x}**4.37**^{a}	0.11	^{x}**4.10**^{a}	0.11	-	^{x}**6.13**^{a}	0.16	^{x}**2.61**^{b}	0.16	*.66*	^{x}**5.65**^{c}	0.16	^{x}**2.55**^{b}	0.16	*.60*
Belonging	^{x}**5.75**^{a}	0.12	^{x}**3.87**^{b}	0.13	*.47*	^{x}**5.15**^{a}	0.12	^{x}**4.47**^{b}	0.13	*.11*	^{x}**6.18**^{a}	0.17	^{x}**4.13**^{b}	0.18	*.35*	^{x}**5.33**^{c}	0.18	^{x}**3.62**^{d}	0.18	*.27*
Trust	^{x}**5.21**^{a}	0.14	^{x}**3.66**^{b}	0.15	*.31*	^{x}**4.88**^{a}	0.14	^{x}**4.00**^{b}	0.15	*.13*	^{x}**5.85**^{a}	0.20	^{x}**3.91**^{b}	0.21	*.26*	^{x}**4.58**^{c}	0.21	^{x}**3.42**^{b}	0.20	*.11*
Meta-trust	^{x}**5.05**^{a}	0.10	^{x}**4.53**^{b}	0.10	*.09*	^{x}**4.96**^{a}	0.10	^{x}**4.63**^{b}	0.10	*.04*	^{x}**5.28**^{a}	0.14	^{x}**4.64**^{b}	0.15	*.07*	^{x}**4.83**^{b}	0.15	^{x}**4.43**^{b}	0.15	-
Maintenance	^{x}**1.82**^{a}	0.11	^{x}**4.02**^{b}	0.11	*.60*	^{x}**2.67**^{a}	0.11	^{x}**3.17**^{b}	0.11	*.07*	^{x}**1.55**^{a}	0.16	^{x}**3.78**^{b}	0.16	*.44*	^{x}**2.09**^{c}	0.16	^{x}**4.26**^{d}	0.16	*.42*
Liking	^{x}**6.32**^{a}	0.10	^{x}**6.00**^{b}	0.10	*.04*	^{x}**6.30**^{a}	0.10	^{x}**6.02**^{b}	0.10	*.03*	^{x}**6.38**^{a}	0.14	^{x}**6.22**^{a}	0.14	-	^{x}**6.25**^{a}	0.14	^{x}**5.79**^{b}	0.14	*.04*
	Market Pricing					Market Pricing										Market Pricing				
RelComp	^{x}**5.34**^{a}	0.10	^{x}**3.33**^{b}	0.10	*.60*	^{x}**4.64**^{a}	0.10	^{x}**4.03**^{b}	0.10	*.12*	^{x}**5.76**^{a}	0.14	^{x}**3.52**^{b}	0.15	*.48*	- ^{x}**4.92**^{c}	0.15	^{x}**3.14**^{b}	0.15	*.36*
Expectation	^{x}**4.55**^{a}	0.17	^{x}**3.99**^{b}	0.17	*.04*	^{x}**4.21**^{a}	0.17	^{x}**4.33**^{a}	0.17	-	^{x}**5.27**^{a}	0.23	^{x}**3.16**^{b}	0.24	*.24*	- ^{x}**3.84**^{c}	0.24	^{y}**4.82**^{d}	0.24	*.06*
Positive Affect	^{y}**5.73**^{a}	0.15	^{x}**2.46**^{b}	0.15	*.65*	^{y}**4.25**^{a}	0.15	^{x}**3.95**^{a}	0.15	-	^{y}**6.00**^{a}	0.21	^{x}**2.50**^{b}	0.22	*.51*	^{y}**5.47**^{a}	0.22	^{x}**2.42**^{b}	0.21	*.44*
Negative Affect	^{y}**1.89**^{a}	0.15	^{x}**5.45**^{b}	0.15	*.69*	^{y}**3.52**^{a}	0.15	^{x}**3.82**^{a}	0.15	-	^{x}**1.53**^{a}	0.21	^{x}**5.50**^{b}	0.21	*.59*	- ^{y}**2.25**^{c}	0.21	^{x}**5.39**^{b}	0.21	*.47*
Control	^{x}**5.78**^{a}	0.13	^{y}**3.02**^{b}	0.13	*.65*	^{y}**4.74**^{a}	0.13	^{x}**4.06**^{b}	0.13	*.10*	^{x}**6.21**^{a}	0.18	^{y}**3.27**^{b}	0.18	*.51*	- ^{x}**5.35**^{c}	0.18	^{x}**2.76**^{d}	0.18	*.45*
Belonging	^{y}**4.89**^{a}	0.13	^{x}**4.12**^{b}	0.13	*.13*	^{x}**4.90**^{a}	0.13	^{y}**4.12**^{b}	0.13	*.13*	^{y}**5.32**^{a}	0.18	^{x}**4.48**^{b}	0.18	*.08*	^{y}**4.46**^{c}	0.18	^{x}**3.77**^{d}	0.18	*.06*
Trust	^{y}**4.33**^{a}	0.14	^{y}**3.07**^{b}	0.14	*.25*	^{y}**4.06**^{a}	0.14	^{y}**3.34**^{b}	0.14	*.10*	^{y}**4.90**^{a}	0.19	^{y}**3.21**^{b}	0.20	*.23*	^{y}**3.75**^{c}	0.20	^{y}**2.93**^{b}	0.19	*.07*
Meta-trust	^{y}**4.49**^{a}	0.11	^{x}**4.53**^{a}	0.11	-	^{y}**4.59**^{a}	0.11	^{x}**4.44**^{a}	0.11	-	^{y}**4.57**^{a}	0.15	^{x}**4.60**^{a}	0.16	-	^{y}**4.42**^{a}	0.16	^{x}**4.45**^{a}	0.15	-
Maintenance	^{y}**2.21**^{a}	0.13	^{x}**3.90**^{b}	0.13	*.39*	^{x}**2.55**^{a}	0.13	^{y}**3.55**^{b}	0.13	*.18*	^{x}**1.59**^{a}	0.18	^{y}**3.52**^{b}	0.19	*.30*	- ^{x}**2.83**^{c}	0.19	^{x}**4.28**^{d}	0.19	*.19*
Liking	^{y}**5.31**^{a}	0.13	^{y}**5.04**^{a}	0.14	-	^{y}**5.60**^{a}	0.13	^{y}**4.74**^{b}	0.14	*.14*	^{y}**5.74**^{a}	0.19	^{y}**5.47**^{a}	0.19	-	^{y}**4.88**^{b}	0.19	^{y}**4.61**^{b}	0.19	-

Note: Superscripts *a*, *b*, *c*, and *d* identify simple mean comparisons between conditions of RelComp and Expectation. Superscripts *x* and *y* identify simple mean comparisons between conditions of RM. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts a means with non-significant differences, $p > .05$. Effects sizes are reported for RelComp and Expectation in the two-way interactions, and for Expectation in the three-way interaction.

4.5.2.2. Manipulation Checks

Significant main effects of RelComp and Expectation on Perceived RelComp were qualified by an interaction between the two predictors (Table 6). As expected Perceived RelComp was higher in the Complementary than in the Non-complementary conditions (Table 7), even though such difference was larger in the $Expected_{RelComp}$ condition than in the $Unexpected_{RelComp}$ condition (Table 7). This interaction also showed that Perceived RelComp was higher in the Complementary/ $Expected_{RelComp}$ condition, than in the Complementary/ $Unexpected_{RelComp}$ condition (Table 7). Table 8 also shows that differences between Complementary and Non-complementary conditions on Perceived RelComp were significant and in the predicted direction in the CS and MP scenarios.

The success of the manipulation of Expectation would be supported by an interaction between RelComp and Expectation, showing higher ratings on the Expectation manipulation check in the conditions in which responses were expected by the initiator (i.e., the Complementary/ $Expected_{RelComp}$ condition and the Non-complementary/ $Unexpected_{RelComp}$ conditions) than in the conditions in which responses were unexpected (i.e., the Non-complementary/ $Expected_{RelComp}$ and the Complementary/ $Unexpected_{RelComp}$ conditions). A main effect of RelComp on the Expectation manipulation check was qualified by an interaction with Expectation and by a three-way interaction (Table 6). As predicted, responses were rated as more expected in the Complementary/ $Expected_{RelComp}$ condition than in the Non-complementary/ $Expected_{RelComp}$ condition, and in the Non-complementary/ $Unexpected_{RelComp}$ condition than in the Complementary/ $Unexpected_{RelComp}$ condition (Table 7). These differences were significant in both CS and MP scenarios, but smaller in the $Unexpected_{RelComp}$ condition of the MP scenario (Table 8).

4.5.2.3. Effects of RelComp on the Dependent Variables

I predicted higher ratings on Perceived RelComp, Positive Affect, Belonging, Control and Trust, and lower ratings on Negative Affect and Maintenance, in the Complementary condition than in the Non-complementary condition, in all levels of Expectation and RM. Such hypotheses would be supported by main effects of RelComp on the dependent variables, showing that the predicted differences were constant across conditions of Expectation and RM, or by interactions of RelComp with Expectation and RM, showing that the predicted differences were weakened or enlarged across conditions of Expectation and RM.

The main effect of RelComp was significant on all dependent variables (Table 6). As predicted, participants experienced higher Positive Affect, Control, Belonging, Trust, and lower Negative Affect and Maintenance, in the Complementary condition than in the Non-complementary condition (Table 7).

Although the effect of RelComp on Trust was qualified by a two-way interaction with Expectation (Table 6), and even though RM interacted with RelComp on Positive Affect, Control, Belonging, and Maintenance (Table 6), differences between the Complementary condition and the Non-complementary condition were significant and in the predicted directions at all levels of Expectation (Table 7) and RM (Table 8). The interaction of RelComp with Expectation on Trust showed that the differences between the Complementary condition and the Non-complementary condition were larger in the $\text{Expected}_{\text{RelComp}}$ condition, than in the $\text{Unexpected}_{\text{RelComp}}$ condition (Table 7). And the interaction of RelComp with RM on Positive Affect, Control, Belonging, and Maintenance, showed that the differences between the Complementary and Non-complementary conditions were larger in the CS scenario than in the MP scenario (Table 8).

4.5.2.5. Exploratory Analyses

Effects of RelComp on Liking and Meta-trust. There was a main effect of RelComp on Liking (Table 6), showing that participants liked the respondent more in the Complementary condition than in the Non-complementary condition (Table 7). The main effect of RelComp on Meta-trust was qualified by an interaction with RM (Table 6), revealing that participants felt more trusted by the respondent in the Complementary condition than in the Non-complementary condition, but only in the CS scenario (Table 8).

Differences between conditions of Expectation. With the exceptions of the manipulation check of Expectation and of Negative Affect, the main effect of Expectation was significant on all dependent variables. However, since Expectation confounded acting as expected with complementarity, in the $\text{Expected}_{\text{RelComp}}$ condition, and with non-complementarity, in the $\text{Unexpected}_{\text{RelComp}}$ condition, main effects of Expectation do not have theoretical meaning, and are hard to interpret in the absence of interactions with RelComp. The interaction between Expectation and RelComp was only significant on Trust. Trust was higher in the Complementary/$\text{Expected}_{\text{RelComp}}$ condition than in the Complementary/

Unexpected$_{RelComp}$ condition, meaning that participants trusted more when the complementary action by the partner was expected than unexpected.

Differences between RMs. There were significant main effects of RM on Positive Affect, Negative Affect, Belonging Trust, Meta-trust, and Liking (Table 6). The effects of RM were qualified by interactions with RelComp on Positive Affect, Belonging, and Meta-trust. The interaction of RM with RelComp was also significant on Control and Maintenance. Negative Affect was lower, whereas Trust and Liking were higher, in the CS scenario than in the MP scenario (Table 7). Positive Affect, Belonging and Meta-trust were higher, and Maintenance was lower, in the CS scenario than in the MP scenario, but only in the Complementary condition (Table 8). Control was higher in the MP scenario than in the CS scenario, but only in the Non-complementary condition (Table 8).

4.5.3. Discussion

This study tested the hypotheses that participants would experience higher Positive Affect, Control, Belonging, Trust, and lower Negative Affect and Maintenance, in complementary than in non-complementary interactions. Since complementary actions in real life are usually expected by others, a second goal of the study was to rule out the effect of Expectation from the effect of RelComp. This was achieved by manipulating whether the complementary action by the respondent was expected or unexpected by the initiator.

The hypotheses were supported with effects of RelComp on Positive and Negative Affect, on Control, Belonging, Trust and Maintenance, in the predicted directions, and across all levels of RM and Expectation.

In addition, RelComp also increased Liking, and participants in the CS scenarios felt more trusted by the other in complementary than in non-complementary interactions, as shown by results on Meta-trust.

A theory of expectations would predict significant interactions between Expectation and RelComp on the dependent variables, revealing higher Positive Affect, Belonging, Control and Trust, and lower Negative Affect and Maintenance, when responses were expected (i.e., in the Complementary/ Expected$_{RelComp}$ condition and in the Non-complementary/ Unexpected$_{RelComp}$ condition) than when responses were unexpected (i.e., in the Non-complementary/ Expected$_{RelComp}$ condition and in the Complementary/ Unexpected$_{RelComp}$

condition). However, an expectation hypothesis was falsified with the lack of statistically significant interactions between RelComp and Expectation on all dependent variables, with the exception of Trust. Still, unlike the predictions of an expectation hypothesis, the two-way interaction showed that Trust was higher in the Complementary condition than in the Non-complementary condition, both when complementarity was expected and unexpected, but that these differences were more pronounced when the complementary response was expected.

Interestingly, the interaction between RelComp and Expectation on Perceived RelComp, showed that complementary actions were perceived as more complementary when they were expected than when they were unexpected. These results suggest that Expectation is one important, but not necessary aspect of perceived RelComp. Furthermore, they help explaining the effect of the interaction of RelComp with Expectation on Trust in a way that is consistent with a theory of RelComp: Trust is higher the more complementary interactions are perceived to be.

The effects of RM showed that the type of relationship influenced affect and motive fulfillment, although less consistently than RelComp. Noteworthy, Positive Affect, Belonging, and Meta-trust were higher in the CS scenario than in the MP scenario, but only in the Complementary condition. On the other hand, Trust and Liking were higher, and Negative Affect was lower, in the CS scenario than in the MP scenario, regardless of whether responses were complementary or non-complementary.

It is interesting to notice the commonalities between the measures of Liking and Trust, and between Belonging and Meta-trust. Liking and Trust were about how the initiator evaluated the respondent, whereas, Belonging, and Meta-trust were about how the initiator perceived himself to be evaluated by the respondent. Hence, one interpretation of the former results is that one's evaluation of the partner is more favorable in CS than in MP interactions, and that this difference is not contingent on the partner's response to one's action. In other words, it does not matter how the other responds to our actions; we like and trust the partner more in CS than in MP interactions. This suggests that liking and trustworthiness are more strongly associated with CS than with other RMs or kinds of relationships.

On the other hand, one's perceptions of the partner's evaluation of oneself—corresponding to ratings on Belonging and Meta-trust—are also more favorable in CS than in MP interactions, but this depends on whether the partner's response is complementary. The

RM of the interaction only makes a difference when responses are complementary. It is possible that non-complementary responses by others communicate a less favorable evaluation of oneself which is independent of the kind of RM that was not complemented.

One additional remark about the effect of RMs on motivational states is concerned with the difference between a social interaction and a social relationship. Partners in the same relationship usually apply different RMs to specific interactions (e.g., taking turns on picking up the children at the kindergarten, EM; and sharing a bank account, CS), although there may be one RM that is more frequently applied (e.g., Communal Sharing), and which defines the nature of the relationship (e.g., marriage). Even though the scenarios used in this experiment described interactions according to one particular RM, they imply that the overall relationship between the characters (e.g., friends or business) was defined by the same RM. Therefore, it is not possible to know whether the effects of RMs observed in this study were caused by the participants' understanding of the RM applied to the interaction or by their understanding of the RM defining the relationship. Future studies can rule out the confound between the RM applied to the interaction and the RM defining the relationship by manipulating interactions that are regulated by one RM that is different from the RM defining the relationship (e.g., two friends – CS relationship – engaging in a business transaction with one another – MP interaction).

Finally, one limitation of the study was that the experience of RelComp, from the perspective of the initiator, was confounded with getting a benefit from the respondent. Since participants were asked to take the perspective of the person who initiated an interaction by requesting something tangible from the partner (e.g., help to paint the apartment, or the rent payment), the complementary response by the partner consisted of following through with the request by giving the respective benefit to the initiator (e.g., helping, or paying the rent). Therefore, one alternative explanation of the effects observed it that the differences observed on affect and need fulfillment were not caused by RelComp, but instead by the tangible benefits of the partner's the response to initiator, relative to the costs of the non-complementary response. If, on the other hand, a theory of RelComp is true, then the effects presented should be also be observed when the complementary responses by the partner are costly to the initiator and the non-complementary responses are beneficial. Such problem was addressed in Study 2.

4.6. Study 2

The main goal of this Study 2 was to test the theoretical hypotheses that individuals experience higher Positive Affect, interaction-specific Control, Belonging and Trust, and lower Negative Affect and Maintenance, in complementary interactions than in non-complementary interactions. Following the same experimental paradigm as Study 1, RelComp was manipulated with the partner performing either a complementary or non-complementary response towards the initiator. The differences from Study 1 are described in what follows.

In daily life, RelComp is usually the means by which people exchange benefits, for instance, through helping, reciprocating favors or business transactions. For that reason, the effects of RelComp are usually confounded with the effects of getting tangible benefits from social interactions, as illustrated by the scenarios in Study 1. Thus, a second goal of Study 2 was to rule out the effects of Benefit from the effects of RelComp. To that end, two conditions were developed in which the complementary response by the partner was either more beneficial or more costly to the initiator than the non-complementary response.

In one condition, the $\text{Beneficial}_{\text{RelComp}}$ condition, similarly to Study 1, participants took the perspective of someone who *requested* or *expected a benefit* from to the partner. Here, the complementary response consisted of giving the benefit to the initiator. The non-complementary response, on the other hand, consisted of either not giving the benefit to the initiator, or giving the benefit while demanding something in return, according to an alternative RM. Hence, the complementary response was more beneficial to the initiator than the non-complementary responses, meaning that RelComp and Benefit were manipulated in the same direction.

Conversely, in the second condition, the $\text{Costly}_{\text{RelComp}}$ condition, participants took the perspective of someone who *offered a benefit* to the partner. The complementary response by the partner consisted of accepting the benefit from the initiator. The non-complementary response, on the other hand, consisted of either refusing the benefit or offering something in return, according to an alternative RM. This way, the complementary response was more costly to the initiator that the non-complementary response, meaning that RelComp and Benefit were manipulated in competing directions. For this reason, this condition allowed disentangling the effects of the two variables.

Since in the $Costly_{RelComp}$ condition the effects of RelComp ran against the effects of Benefit three possible results were anticipated: a) significant differences between conditions of RelComp in the predicted direction, meaning that RelComp overrode the effects of Benefit; b) significant differences between conditions of RelComp in the opposite direction to the one predicted, meaning that Benefit overrode the effects of RelComp; and c) no significant differences between conditions of RelComp, meaning that RelComp and Benefit cancelled each other. A theory of RelComp would be supported by a), and a theory of Benefit would be supported by b); and c) would support neither of the theories, suggesting, however, that RelComp and Benefit may be two distinct and competing effects.

An additional difference from Study 1 was the form of the responses. In Study 1 respondents either implemented the complementary RM or did not implement a RM at all (at least not an obvious one). Not implementing a RM is equivalent to not relating, i.e., to not pursuing a pattern of RelComp. However, social interactions are usually more nuanced. A less extreme non-complementary alternative to not relating is to implement a different RM from the one applied by the partner. For example, instead of refusing to help a friend painting his apartment, one accepts to join him in the task for $40 or for a favor in return. Should the alternative RM be recognized by the initiator as an acceptable relational pattern and a new kind of RelComp replaces the previous one in the interaction. Such dynamics makes social interactions highly flexible, negotiable and harder to predict. Hence, Study 2 manipulated non-complementarity by exposing participants to responses that implemented different RMs from the ones implemented by the initiator. The goal was to test whether the effects of RelComp on affect and need fulfillment are robust when the respondent, despite his motivation to relate, fails to perform the complementary action.

Furthermore, it was assumed that the differences between complementary and non-complementary responses may vary depending on the RM of the non-complementary response. For instance, when initiating a CS based interaction (e.g., “I’m planning to paint my apartment myself soon. Would you give me a hand?”), a non-complementary EM response (e.g., “Of course I’ll give you a hand! You fixed my car last week… That is the least I can do!”) may be a more acceptable alternative to the complementary CS response (e.g., “Sure buddy, I’m happy to help!”) than a non-complementary MP response (e.g., “Sure! I’ll take about $40 for the work.”). In order to control for such differences, for each complementary response two non-complementary responses were manipulated according to different RMs.

It was also anticipated that some non-complementary responses could be perceived by participants as highly acceptable alternatives to the complementary response to the point that differences between the complementary and the non-complementary response on the dependent variables would not reach statistical significance. Therefore, I hypothesized that, even if the complementary condition did not differ significantly from one particular non-complementary condition, Positive Affect, Control, Belonging, Trust on the respondent, would be significantly higher, whereas Negative Affect and Maintenance would be significantly lower, on the complementary condition when compared with the two non-complementary conditions together, and that these differences would be significant both when RelComp was beneficial and costly to the initiator.

Theoretically, Trust, among the dependent variables, should be especially sensitive to benefits. Trust has been defined as beliefs about the partner's concern with the trustor's welfare and willingness to support the trustor's best interests (e.g., Holmes & Rempel, 1989; Kramer & Carnevale, 2001; Murray, et al, 2011; Rousseau, et al., 1998; Wieselquist, et al., 1999). Consistently with this definition, previous research has shown that trust grows as relational partners demonstrate care and responsiveness, by sacrificing their own interests on behalf of the partner's needs (e.g., Shallcross & Simpson, 2012; Wieselquist, et al., 1999). These findings are consistent with a RelComp hypothesis, in that accommodation is one way to complement the partner's actions. However, if the partner's concern and willingness to sacrifice and accommodate to one's immediate interests is a necessary condition for trust, more than RelComp itself, then Trust should be higher when responses are beneficial rather than costly to the initiator (i.e., higher in the Complementary/ $\text{Beneficial}_{\text{RelComp}}$ condition than in the Non-complementary/ $\text{Beneficial}_{\text{RelComp}}$ condition, and higher in the Non-complementary/ $\text{Costly}_{\text{RelComp}}$ condition than in the Complementary/ $\text{Costly}_{\text{RelComp}}$ condition). On the other hand, if RelComp, more than having one's immediate interests addressed by the partner, is a necessary condition for trust, then Trust should be higher in the Complementary condition than in the Non-Complementary condition, regardless of benefits. The theoretical implication of such hypothesis is that other kinds of interpersonal strategies, other than accommodation, are available to enhance trust among partners.

Finally, as in Study 1, I explored whether RelComp and Benefit affected the initiator's Meta-trust (i.e., the imitator's perception of being trusted by the respondent), and Liking of the respondent during the interaction.

4.6.1 Methods

4.6.1.1 Participants

Three-hundred and sixty-five residents in the U.S.A. (95.5% U.S. nationals; 55.3% females; with ages between 18 and 71; M^{age} = 34.64, *SD* = 11.75) completed a 15-minute online questionnaire. They were recruited through the online crowdsourcing marketplace Amazon Mechanical Turk, and paid $1 for completing the questionnaire. Forty-four percent (44.1%) had a bachelor degree, 33.8% had a high-school diploma or equivalent, 10.3% had a master or PhD degree, 5.2% had a post-secondary non-degree award, and two participants had less than high school.

4.6.1.2 Design

This was a 4 (CS vs. AR vs. EM vs. MP) x 3 (Complementary vs. Non-complementary RM1 vs. Non-complementary RM2) x 2 ($\text{Beneficial}_{\text{RelComp}}$ vs. $\text{Costly}_{\text{RelComp}}$) mixed factorial design. Each participant was randomly assigned to two of twenty-four scenarios describing an interaction between two characters: one initiator and one respondent. The twenty-four scenarios resulted from the combination of three variables: the RM implemented by the initiator (RM: CS vs. AR vs. EM vs. MP); whether the respondent replied with a complementary RM or with one of two possible non-complementary RMs (RelComp: Complementary vs. Non-complementary RM1 vs. Non-complementary RM2); and whether the complementary response was beneficial (while the non-complementary response was costly) or costly (while the non-complementary was beneficial) to the initiator (Benefit: $\text{Beneficial}_{\text{RelComp}}$ vs. $\text{Costly}_{\text{RelComp}}$). RelComp and Benefit were manipulated between subjects, and RM was manipulated within subjects by assigning each participant to two of the four RMs randomly combined. As in Study 1, the levels of RelComp and Benefit were held constant within participants.

4.6.1.3 Materials and Procedure

The online questionnaire was built in Qualtrics. The procedures for informing participants about the purpose of the study, the voluntary nature of their participation, the confidentiality and anonymity of their answers, the contact of the main investigator for further information, as well as for administering the manipulations and the dependent measures, and for debriefing the participants were the same as in Study 1. The dependent variables were

Liking of the respondent, Positive Affect, Negative Affect, Maintenance, Control, initiator's Trust, initiator's Meta-trust, Belonging, and the manipulation check was Perceived RelComp. The measures were administered in the same order as in Study 1.

Scenarios. Four types of scenarios were presented to participants describing interactions about the painting of an apartment, the writing of a report, carpooling to work, and the fixing of a dishwasher, respectively. The scenarios had the following structure: (a) a description of the context of the interaction, (b) the initiation by the first character, (c) the response by the second character (see full description of all scenarios in Appendix J).

The description of the interaction context introduced the two male characters, their relationship, the aspect of the relationship that required coordination between the two, and the RM (CS vs. AR vs. EM vs. MP) to be implemented to achieve coordination.

The aspects to be coordinated were: the painting of an apartment, in the CS scenario, the writing of a report, in the AR scenario; carpooling to work, in the EM scenario; and the fixing of a dishwasher, in the MP scenario. RMs were specified according to the experimental condition by describing how each aspect was going to be coordinated among the characters. Specifically, one of the characters would: help the other paint an apartment, in the CS scenario; follow an order to write the report or teach the other how write it, in the AR scenario; take his turn in driving the other to work, in the EM scenario; and fix an equipment for the other in return for payment, in the MP scenario.

In order to manipulate Benefit, helping the other, writing or teaching how to write a report, driving the other to work or paying for the job were conceived as tangible benefits that were transferred from one character to the other, should RelComp be achieved. On the $\text{Beneficial}_{\text{RelComp}}$ condition the initiator expected a benefit from the respondent (e.g., "*Peter just moved in to a new apartment. It looked a bit dingy, so he decided to paint it himself. Since Peter didn't want to do it alone, he called his old friend John to ask for help*: - *Hey John, how's it going? I'm planning to paint my apartment myself soon. Would you give me a hand?*"). On the $\text{Costly}_{\text{RelComp}}$ condition the initiator offered a benefit to the respondent (e.g., "*Peter's old friend John just moved in to a new apartment. It looked a bit dingy, so John decided to paint it himself. When Peter figured out that John was planning to paint it all alone he called John to offer his help*: - *Hey John, how's it going? You'll probably need a hand to paint the apartment. Do you want me to help you?"*). As in Study 1, the first character

initiated the interaction by making a request (in the $\text{Beneficial}_{\text{RelComp}}$ condition) or an offer (in the $\text{Costly}_{\text{RelComp}}$ condition) according to the relational model corresponding to the experimental condition of RM.

The response of the second character differed according to the RelComp condition. In the Complementary condition the response was cooperative. In the $\text{Beneficial}_{\text{RelComp}}$ condition the Complementary response consisted in giving the benefit to the initiator, and hence, was beneficial to the initiator (e.g., "- *Sure buddy, I'm happy to help*"). In the $\text{Costly}_{\text{RelComp}}$ condition the Complementary response consisted in accepting the benefit from the initiator, and hence, was costly to the initiator (e.g., "- *Yes, buddy, I could use some help, thanks a lot!*").

The Non-complementary conditions were operationalized as responses implementing relational models alternative to the relational model applied by the initiator[25]. For example in the CS scenario the Non-complementary responses were either implementations of AR or MP. In addition, the Non-complementary responses in the $\text{Beneficial}_{\text{RelComp}}$ condition were created to be more tangibly costly to the initiator than the Complementary response, either by not giving the benefit to the initiator or by demanding something in return from the initiator (e.g., MP response to CS: "*Sure. I'll take about 40$ for the work*"; AR response to CS: "*Ok. We start at 7:00 am. Please have all the tools ready and pick me up at my place by 6:30. Don't be late*"). Conversely, in the $\text{Costly}_{\text{RelComp}}$ condition, the Non-complementary responses were created to be more tangibly beneficial to the initiator than the Complementary response, either by not accepting the offer or by offering something in return (e.g., AR response to CS: "*Yes, Peter. For the moment it seems I don't need you because I have another assistant. But I want you to be on standby, just in case. Please, don't make any plans for that day without talking to me first"*; MP response to CS: "- *Sure, Peter. Great! In that case I'll pay you 40$ for half-day work"*).

Measures. The items measuring Liking (M = 5.23, SD = 1.46, Min. = 1, Max. = 7), Positive Affect (M = 4.72, SD = 1.88, Min. = 1, Max. = 7), Negative Affect (M = 3.42, SD =

[25] Initial versions of each scenario were pre-tested online with 206 U.S. residents via Amazon Mechanical Turk. Thirty-two scenarios operationalizing a 4 (CS vs. AR vs. EM vs. MP by the initiator) x 4 (CS vs. AR vs. EM vs. MP by the respondent) x 2 ($\text{Beneficial}_{\text{RelComp}}$ vs. $\text{Costly}_{\text{RelComp}}$) design were evaluated on the scale of Perceived RelComp. Each participant was randomly assigned to four scenarios corresponding to each RM. The two Non-complementary conditions that were rated lower on the Perceived RelComp scale for each RM scenario were selected for the main study. The pretested versions, however, were modified for the main study based on participants' qualitative comments to each interaction.

2.05, Min. = 1, Max. = 7), Maintenance ($\alpha_{\text{first scenario}}$ = .91, $\alpha_{\text{second scenario}}$ = .92, *M* = 3.11, *SD* = 1.60, Min. = 1.00, Max. = 7.00), Control ($\alpha_{\text{first scenario}}$ = .86, $\alpha_{\text{second scenario}}$ = .90, *M* = 4.37, *SD* = 1.40, Min. = 1.00, Max. = 7.00), initiator's Trust ($\alpha_{\text{first scenario}}$ = .90, $\alpha_{\text{second scenario}}$ = .92, *M* = 4.35, *SD* = 1.46, Min. = 1.00, Max. = 7.00), initiator's Meta-trust ($\alpha_{\text{first scenario}}$ = .84, $\alpha_{\text{second scenario}}$ = .87, *M* = 4.74, *SD* = 1.15, Min. = 1.00, Max. = 7.00), Belonging ($\alpha_{\text{first scenario}}$ = .92, $\alpha_{\text{second scenario}}$ = .94, *M* = 4.67, *SD* = 1.52, Min. = 1.00, Max. = 7.00) and Perceived RelComp ($\alpha_{\text{first scenario}}$ = .97, $\alpha_{\text{second scenario}}$ = .98, *M* = 4.48, *SD* = 1.60, Min. = 1.00, Max. = 7.00) were the same and presented in the same order as in Study 1. The original English versions of the items for Positive and Negative Affect (Larsen, et al., 2009), Maintenance (Finkel, et al., 2006), Trust and Meta-trust (Klapwijk & Van Lange, 2009), were adapted to the purpose of the study. Control, Belonging, and Perceived RelComp, were measured with the English version, from which the items in Study 1 were translated to Portuguese. The item of Liking was translated directly to English. As in Study 1 a mean score of the items composing each scale was computed and treated as dependent variable.

4.6.2 Results

Correlations between all measures are shown in Table 9. Perceived RelComp, Positive and Negative Affect, Control, Belonging, Trust, Maintenance and Liking correlated strongly with one another ($r \geq |.50|$). Meta-trust correlated moderately ($r > |.30|$) to strongly ($r \geq |.50|$) with the other measures.

Table 9 – Pearson correlations between all measures

		1	2	3	4	5	6	7	8	9
RelComp	1	1.00	**.85****	**-.80****	**.86****	**.84****	**.80****	**.51****	**-.88****	**.66****
Pos. Affect	2	.88**	1.00	**-.84****	**.78****	**.84****	**.76****	**.50****	**-.84****	**.74****
Neg. Affect	3	-.79**	-.81**	1.00	**-.72****	**-.76****	**-.69****	**-.46****	**.82****	**-.62****
Control	4	.88**	.82**	-.71**	1.00	**.76****	**.75****	**.53****	**-.80****	**.60****
Belonging	5	.85**	.85**	-.73**	.76**	1.00	**.86****	**.69****	**-.82****	**.73****
Trust	6	.83**	.81**	-.71**	.78**	.88**	1.00	**.69****	**-.79****	**.72****
Meta-trust	7	.54**	.52**	-.43**	.49**	.64**	.69**	1.00	**-.55****	**.55****
Maintenance	8	-.91**	-.88**	.81**	-.83**	-.84**	-.81**	-.55**	1.00	**-.73****
Liking	9	.65**	.75**	-.58**	.60**	.74**	.71**	.56**	-.70**	1.00

Note: * $p < .05$; ** $p < .01$. Correlations for the first scenario of each participant (n = 365) are reported in the upper part of the table. Correlations for the second scenario of each participant (n = 329) are reported in the lower part of the table.

The data were analyzed with Multivariate Multilevel Modeling (MLM), because it does not meet Repeated Measures GLM's assumption that all response measures are available for all individuals (Heck, Thomas & Tabata, 2014; Hox, 2010). Notice that since each participant was randomly assigned to two of four conditions of the within-subjects predictor—RM, they

had systematic missing values on at least two of the four measurement points of RM. For this reason, they would be excluded from Repeated Measures GLM through listwise deletion.

The Multivariate MLM was conducted with IBM SPSS Statistics 23 MIXED procedure (Heck, et al., 2014). In order to control for interdependence of the data within participants a three-level model was tested. The three levels were specified as follows (see full syntax in Appendix K).

Level 1 was defined by within-scenario variation, namely, (a) the variance and covariance of the residuals of each dependent measure, and (b) one separate intercept for each dependent measure. The variance and covariance of the residuals of each dependent measure, within scenario for each participant, formulated the multivariate model. To that end, participants' scores on each dependent variable were organized vertically in the data file and represented by one single variable, DV, which was defined as the dependent variable in multilevel the model (Heck, et al., 2014). The scores on Negative Affect and Maintenance were coded in the same direction as the other variables. For each scenario within participants, each score was identified by a second categorical predictor (Heck, et al., 2014), IndexDV, coding each dependent measure from 1 = Liking, to 9 = Perceived RelComp. The multivariate model was formulated by specifying IndexDV as repeated variable, nested within scenario, with a heterogeneous first-order autoregressive variance-covariance structure (ARH1) of the residuals (Heck, et al., 2014; see REPEATED formulation in syntax, Appendix K). The ARH1 structure assumes that the residuals have heterogeneous variance among measurement occasions (i.e., each level of IndexDV), and that the correlations are homogenous between equally distant measurement occasions, but become weaker with longer time distance between them (Heck, et al., 2014). Finally, in order to obtain the average for each dependent measure within scenario, a separate intercept for each level of IndexDV was added to the model. This was achieved by defining IndexDV as Level 1 categorical predictor, and by excluding the intercept of IndexDV from the model (Heck, et al., 2014; Hox, 2010; see NOINT formulation on FIXED effects in syntax, Appendix K).

Level 2 was defined by variation between scenarios, nested within participants. Specifically, the slope of each level of RM was added to the model, by defining RM as categorical predictor (see FIXED effects in syntax, Appendix K).

Level 3 was defined by between-participants variation, namely, (a) the random effect of the combinations between the RM of the first scenario and the RM of the second scenario;

and (b) the effects of RelComp, Benefit, RelComp*Benefit interaction, and the cross-level interactions between RelComp, Benefit and RM. Since each participant was assigned to one of twelve possible combinations between the RM of the first scenario and the RM of the second scenario, a categorical predictor, RMComb, coding the twelve combinations was created. In order to control for the effect of the order (first vs. second) in which each RM was presented to the participant, and for the effect of the RM of the first scenario on responses to the second scenario, within a particular combination, the interaction RMComb*RM was introduced as random effect, i.e., it was allowed to vary randomly across participants. The random effect was estimated with a Scaled Identity variance-covariance structure, which assumes homogeneous variance across and no covariance between conditions (see RANDOM formulation in syntax, Appendix K). Notice that a model assuming a Diagonal variance-covariance structure of the random slope—heterogeneous variance across and no covariance between conditions—presented non-positive definite covariance matrix errors and could not be estimated. The multivariate model with the random effect of the RMComb*RM interaction was tested and compared with the multivariate model without random effects, using -2 Log Likelihood criterion, with lower values meaning better fit (see M0 and M1 in Table A1, Appendix K). Both models included the separate intercepts of each level of Index DV at Level 1, but not the slope of RM at Level 2, nor the slopes of RelComp and Benefit at Level 3. The models were estimated with Maximum Likelihood. The random-effects model (M1) showed significantly better fit, $\Delta\chi^2(1) = 1222.34$, $p < .001$, than the no-random-effects model (M0). The RMComb*RM interaction was significant, $p < .001$, and explained 22% of the residual variance, as indicated by the intraclass correlation coefficient (ICC = 0.22, M1, Table A1, Appendix K).

Finally, RelComp and Benefit were added as Level 3 predictors. Specifically, one slope was specified for each level of RelComp, Benefit, RelComp*Benefit interaction, and cross-level two- and three-way interactions between RelComp and Benefit (at Level 3) with RM (at Level 2). Additionally, in order to obtain a separate slope for each dependent measure, each predictor was added as interaction with IndexDV (Heck, et al., 2014). The interaction with IndexDV applied to the main effects, as well as to the two- and three-way interactions between RM, RelComp, and Benefit (see FIXED formulation in syntax, Appendix K).

In sum, the final model specified: the variance and covariance of residuals for each level of IndexDV; a separate intercept for each level of IndexDV; the random effect of RMComb*RM; and one slope for each level of the categorical predictors, RelComp, Benefit,

and RM, including main effects, two- and three-interactions, at each level of IndexDV. The final model was estimated with Maximum Likelihood and a 95% confidence interval (see full syntax in Appendix K).

Table A1 in Appendix K shows the estimates of residual variance and covariance, corresponding to the repeated and random effects, and the -2 Log Likelihood value for the final model (column M8). The variance explained by each predictor from models M2 to M8, indicated by Proportional Reduction in Variance[26], is also shown in Table A1 in appendix K. The means and standard errors of each dependent measure at each level of the RelComp, Benefit and RM are presented in Tables 10 and 11.

4.6.2.1 Preliminary analyses

The hypotheses predicted significant differences between conditions of RelComp on the dependent measures. These differences would be revealed by a significant RelComp*IndexDV interaction, if the predicted effect of RelComp was constant across conditions of Benefit and RM, or by significant IndexDV*RelComp*Benefit, IndexDV*RelComp*RM, and IndexDV*RelComp* Benefit*RM interactions, if the predicted effect of RelComp varied across conditions of Benefit and RM.

As expected, the omnibus tests of the fixed effects showed statistically significant interactions between IndexDV and RelComp, $F(18, 1169.66) = 39.78$, $p < .001$; between IndexDV, RelComp and Benefit, $F(18, 1169.66) = 15.02$, $p < .001$; between IndexDV, RelComp and RM, $F(54, 1169.66) = 3.82$, $p < .001$; and between IndexDV, RelComp, Benefit and RM, $F(54, 1169.66) = 6.95$, $p < .001$. There was also a main effect of IndexDV, $F(9, 1169.66) = 1691.31$, $p < .001$; two-way interactions of IndexDV with Benefit, $F(9, 1169.66) = 9.54$, $p < .001$, and of IndexDV with RM, $F(27, 1169.66) = 7.18$, $p < .001$; and a significant three-way interaction of IndexDV with Benefit and RM, $F(27, 1169.66) = 7.05$, $p < .001$.

In the following sections the four-way interaction is described (Tables 10 and 11). First, the hypotheses were tested by comparing each complementary condition with the two non-

[26] Proportional reduction in variance (PRV = ($variance_{NoPredictor} - variance_{Predictor}$) / $variance_{NoPredictor}$; Peugh, 2010) is a measure of effect size that compares the residual variance of a model (e.g., M2) without a predictor (e.g., Benefit) and the residual variance of a model with the predictor (e.g., M3), thus, showing the amount of residual variance that is reduced on the dependent variable by adding the fixed effect of the predictor (Heck, et al., 2014)

complementary conditions together with planned contrasts (1, -0.5, -0.5) on each dependent variable, at each level of Benefit and RM. The planned contrasts were defined with the /TEST subcommand (see example on syntax, Appendix K). Second, differences between the Complementary condition and each Non-complementary condition separately, at each level of Benefit and RM, were examined with Bonferroni adjusted post-hoc tests. Mean differences between conditions of Benefit and RM at each level of the other predictors were also explored with post-hoc tests.

Table 10 – Estimated marginal means, standard errors, planned contrasts and post-hoc tests for Communal Sharing and Authority Ranking

	Communal Sharing									Authority Ranking								
	Comp		Non-comp AR		Non-comp MP		Contrast Comp vs. Non-Comp			Comp		Non-comp EM		Non-comp MP		Contrast Comp vs. Non-Comp		
	M	*SE*	*M*	*SE*	*M*	*SE*	*Est.*	*SE*	*p*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*Est.*	*SE*	*p*
	RelComp Beneficial									RelComp Beneficial								
RelComp	^{1x}**6.06**^{a}	0.19	^{1x}**4.99**^{b}	0.22	^{12x}**3.07**^{c}	0.22	2.04	0.24	**<.001**	^{12x}**5.59**^{a}	0.18	^{2x}**3.11**^{b}	0.23	^{1x}**3.58**^{b}	0.21	2.24	0.24	**<.001**
Positive Affect	^{1x}**6.57**^{a}	0.21	^{1x}**5.65**^{b}	0.24	^{12x}**2.92**^{c}	0.24	2.28	0.27	**<.001**	^{12x}**5.86**^{a}	0.21	^{2x}**2.79**^{b}	0.25	^{1x}**3.59**^{b}	0.24	2.67	0.27	**<.001**
Negative Affect-rev	^{1x}**6.17**^{a}	0.25	^{1x}**5.00**^{b}	0.29	^{1x}**2.69**^{c}	0.29	2.32	0.32	**<.001**	^{1x}**5.69**^{a}	0.24	^{1x}**2.29**^{b}	0.30	^{1x}**3.19**^{b}	0.28	2.96	0.32	**<.001**
Control	^{12x}**5.41**^{a}	0.20	^{1x}**4.79**^{a}	0.23	^{12x}**3.10**^{b}	0.23	1.47	0.26	**<.001**	^{1x}**5.81**^{a}	0.20	^{2x}**3.26**^{b}	0.24	^{1x}**3.77**^{b}	0.23	2.30	0.26	**<.001**
Belonging	^{1x}**6.27**^{a}	0.19	^{1x}**5.25**^{b}	0.22	^{12x}**3.25**^{c}	0.22	2.02	0.24	**<.001**	^{2x}**5.24**^{a}	0.19	^{2x}**3.28**^{b}	0.23	^{1x}**3.91**^{b}	0.21	1.65	0.24	**<.001**
Trust	^{1x}**5.64**^{a}	0.19	^{1x}**5.11**^{a}	0.22	^{12x}**3.35**^{b}	0.22	1.41	0.25	**<.001**	^{1x}**5.30**^{a}	0.19	^{2x}**3.14**^{b}	0.23	^{1x}**3.94**^{c}	0.22	1.76	0.25	**<.001**
Meta-trust	^{1x}**5.47**^{a}	0.22	^{1x}**4.54**^{b}	0.25	^{1x}**4.02**^{b}	0.25	1.19	0.28	**<.001**	^{1x}**5.11**^{a}	0.22	^{1x}**3.99**^{b}	0.26	^{1x}**4.10**^{b}	0.25	1.07	0.28	**<.001**
Maintenance-rev	^{1x}**6.31**^{a}	0.19	^{1x}**5.24**^{b}	0.22	^{12x}**3.54**^{c}	0.22	1.92	0.25	**<.001**	^{12x}**5.77**^{a}	0.19	^{2x}**3.58**^{b}	0.23	^{1x}**3.91**^{b}	0.22	2.03	0.25	**<.001**
Liking	^{1x}**6.49**^{a}	0.22	^{1x}**5.81**^{a}	0.25	^{1x}**4.77**^{b}	0.25	1.20	0.28	**<.001**	^{2x}**5.33**^{a}	0.22	^{2x}**4.08**^{b}	0.27	^{1x}**4.52**^{b}	0.25	1.03	0.28	**<.001**
	n = 35		*n* = 26		*n* = 26					*n* = 36		*n* = 24		*n* = 27				
	RelComp Costly									RelComp Costly								
RelComp	^{1x}**6.12**^{a}	0.19	^{1y}**2.82**^{b}	0.21	^{1y}**4.30**^{c}	0.21	2.56	0.24	**<.001**	^{12x}**5.70**^{a}	0.19	^{2y}**4.72**^{b}	0.22	^{1y}**4.41**^{b}	0.22	1.14	0.25	**<.001**
Positive Affect	^{1x}**6.21**^{a}	0.21	^{1y}**2.79**^{b}	0.23	^{1y}**4.79**^{c}	0.23	2.42	0.27	**<.001**	^{1x}**5.88**^{a}	0.21	^{2y}**4.96**^{b}	0.25	^{1y}**4.64**^{b}	0.25	1.08	0.27	**<.001**
Negative Affect-rev	^{1x}**6.27**^{a}	0.25	^{1y}**2.75**^{b}	0.28	^{1y}**4.79**^{c}	0.28	2.50	0.32	**<.001**	^{1x}**6.00**^{a}	0.25	^{2y}**4.60**^{b}	0.29	^{1y}**4.40**^{b}	0.29	1.50	0.32	**<.001**
Control	^{1x}**5.32**^{a}	0.21	^{1y}**2.88**^{b}	0.22	^{1y}**4.27**^{c}	0.22	1.75	0.26	**<.001**	^{1x}**5.65**^{a}	0.21	^{2y}**4.76**^{b}	0.24	^{12y}**4.61**^{b}	0.24	0.97	0.26	**<.001**
Belonging	^{1x}**6.07**^{a}	0.19	^{1y}**3.06**^{b}	0.21	^{12y}**5.06**^{c}	0.21	2.01	0.24	**<.001**	^{12x}**5.58**^{a}	0.19	^{2y}**5.18**^{a}	0.22	^{2y}**4.67**^{b}	0.22	0.65	0.25	**.008**
Trust	^{1x}**5.62**^{a}	0.20	^{1y}**3.15**^{b}	0.22	^{12y}**5.01**^{a}	0.22	1.54	0.25	**<.001**	^{12x}**5.22**^{a}	0.20	^{2y}**4.85**^{ab}	0.23	^{1x}**4.42**^{b}	0.23	0.59	0.25	**.020**
Meta-trust	^{1x}**5.66**^{a}	0.22	^{1x}**4.71**^{b}	0.24	^{1y}**5.05**^{ab}	0.24	0.78	0.28	**.006**	^{1x}**5.31**^{a}	0.22	^{1y}**5.21**^{a}	0.26	^{1y}**4.93**^{a}	0.26	0.24	0.29	>.250
Maintenance-rev	^{1x}**6.32**^{a}	0.20	^{1y}**3.26**^{b}	0.22	^{1y}**4.91**^{c}	0.22	2.23	0.25	**<.001**	^{1x}**5.99**^{a}	0.20	^{2y}**4.99**^{b}	0.23	^{1y}**4.99**^{b}	0.23	1.00	0.25	**<.001**
Liking	^{1x}**6.24**^{a}	0.22	^{12y}**4.79**^{b}	0.25	^{1y}**6.04**^{a}	0.25	0.82	0.28	**.004**	^{1y}**6.00**^{a}	0.22	^{1y}**5.40**^{a}	0.26	^{1y}**5.44**^{a}	0.26	0.58	0.29	**.045**
	n = 34		*n* = 28		*n* = 28					*n* = 34		*n* = 25		*n* = 25				

Note: Comp = Complementary, Non-comp = Non-complementary. Superscripts *a, b* and *c* identify simple mean comparisons between conditions of RelComp. Superscripts *x* and *y* identify simple mean comparisons between conditions of Benefit. Superscripts *1, 2* and *3* identify simple mean comparisons between conditions of RM across Tables 10 and 11. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$.

Table 11 – Estimated marginal means, standard errors, planned contrasts and post-hoc test for Equality Matching and Market Pricing

	Equality Matching									Market Pricing								
	Comp		Non-comp AR		Non-comp MP		Contrast Comp vs. Non-Comp			Comp		Non-comp CS		Non-comp AR		Contrast Comp vs. Non-Comp		
	M	*SE*	*M*	*SE*	*M*	*SE*	*Est.*	*SE*	*p*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*Est.*	*SE*	*p*
	RelComp Beneficial									RelComp Beneficial								
RelComp	$^{1\,x}$**5.77**^{a}	0.19	$^{2\,x}$**3.68**^{b}	0.22	$^{12\,x}$**2.83**^{c}	0.22	2.51	0.24	**<.001**	$^{2\,x}$**4.99**^{a}	0.19	$^{2\,x}$**3.30**^{b}	0.23	$^{1\,x}$**2.62**^{b}	0.21	2.03	0.24	**<.001**
Positive Affect	$^{12\,x}$**6.00**^{a}	0.21	$^{3\,x}$**3.89**^{b}	0.24	$^{2\,x}$**2.56**^{c}	0.25	2.78	0.27	**<.001**	$^{2\,x}$**5.29**^{a}	0.21	$^{23\,x}$**3.74**^{b}	0.26	$^{2\,x}$**2.46**^{c}	0.23	2.18	0.27	**<.001**
Negative Affect-rev	$^{1\,x}$**6.03**^{a}	0.25	$^{3\,x}$**3.65**^{b}	0.29	$^{1\,x}$**2.12**^{c}	0.29	3.14	0.32	**<.001**	$^{1\,x}$**5.60**^{a}	0.25	$^{13\,x}$**4.17**^{b}	0.30	$^{1\,x}$**2.43**^{c}	0.28	2.30	0.32	**<.001**
Control	$^{12\,x}$**5.19**^{a}	0.20	$^{2\,x}$**3.60**^{b}	0.23	$^{12\,x}$**2.95**^{b}	0.24	1.91	0.26	**<.001**	$^{2\,x}$**4.96**^{a}	0.20	$^{2\,x}$**3.57**^{b}	0.25	$^{2\,x}$**2.80**^{b}	0.22	1.77	0.26	**<.001**
Belonging	$^{12\,x}$**5.60**^{a}	0.19	$^{3\,x}$**4.19**^{b}	0.22	$^{2\,x}$**2.98**^{c}	0.22	2.01	0.25	**<.001**	$^{2\,x}$**5.13**^{a}	0.19	$^{3\,x}$**4.33**^{b}	0.23	$^{2\,x}$**2.48**^{c}	0.21	1.72	0.24	**<.001**
Trust	$^{12\,x}$**4.99**^{a}	0.20	$^{2\,x}$**3.64**^{b}	0.22	$^{23\,x}$**2.86**^{c}	0.23	1.74	0.25	**<.001**	$^{2\,x}$**4.43**^{a}	0.19	$^{2\,x}$**3.21**^{b}	0.24	$^{3\,x}$**2.19**^{c}	0.22	1.74	0.25	**<.001**
Meta-trust	$^{1\,x}$**5.11**^{a}	0.22	$^{1\,x}$**4.85**^{ab}	0.25	$^{1\,x}$**4.10**^{b}	0.26	0.64	0.29	**.026**	$^{1\,x}$**4.79**^{a}	0.22	$^{1\,x}$**4.61**^{a}	0.27	$^{1\,x}$**3.58**^{b}	0.24	0.70	0.28	**.014**
Maintenance-rev	$^{12\,x}$**6.06**^{a}	0.20	$^{2\,x}$**4.19**^{b}	0.22	$^{12\,x}$**3.32**^{c}	0.23	2.20	0.25	**<.001**	$^{2\,x}$**5.39**^{a}	0.19	$^{2\,x}$**3.87**^{b}	0.24	$^{2\,x}$**2.82**^{c}	0.22	2.05	0.25	**<.001**
Liking	$^{12\,x}$**5.88**^{a}	0.22	$^{12\,x}$**4.96**^{b}	0.25	$^{12\,x}$**3.84**^{c}	0.26	1.48	0.29	**<.001**	$^{2\,x}$**5.29**^{a}	0.22	$^{2\,x}$**4.04**^{b}	0.27	$^{2\,x}$**3.21**^{b}	0.25	1.66	0.29	**<.001**
	n = 34		*n* = 26		*n* = 25					*n* = 35		*n* = 23		*n* = 28				
	RelComp Costly									RelComp Costly								
RelComp	$^{3\,y}$**4.76**^{a}	0.20	$^{1\,x}$**3.31**^{b}	0.21	$^{2\,y}$**5.47**^{c}	0.21	0.37	0.25	.132	$^{23\,x}$**5.00**^{a}	0.20	$^{2\,y}$**4.32**^{a}	0.21	$^{1\,y}$**4.45**^{a}	0.21	0.62	0.24	**.012**
Positive Affect	$^{2\,y}$**5.03**^{a}	0.22	$^{1\,x}$**3.37**^{b}	0.24	$^{2\,y}$**6.11**^{c}	0.24	0.29	0.27	>.250	$^{2\,y}$**4.56**^{a}	0.22	$^{2\,y}$**5.46**^{b}	0.23	$^{12\,y}$**5.41**^{b}	0.23	-0.89	0.27	**.001**
Negative Affect-rev	$^{2\,y}$**5.03**^{a}	0.26	$^{1\,x}$**3.00**^{b}	0.28	$^{2\,y}$**6.04**^{c}	0.28	0.51	0.33	.116	$^{2\,y}$**4.75**^{a}	0.26	$^{2\,x}$**4.93**^{a}	0.28	$^{12\,y}$**5.31**^{a}	0.27	-0.37	0.32	>.250
Control	$^{2\,y}$**4.48**^{a}	0.21	$^{13\,x}$**3.61**^{b}	0.23	$^{2\,y}$**5.32**^{c}	0.23	0.02	0.26	>.250	$^{2\,x}$**4.51**^{a}	0.21	$^{23\,x}$**4.00**^{a}	0.22	$^{1\,y}$**4.32**^{a}	0.22	0.35	0.26	.178
Belonging	$^{2\,x}$**5.11**^{a}	0.20	$^{1\,y}$**3.42**^{b}	0.21	$^{1\,y}$**5.82**^{c}	0.21	0.49	0.25	.050	$^{3\,y}$**4.08**^{a}	0.20	$^{2\,y}$**5.26**^{b}	0.21	$^{12\,y}$**5.10**^{b}	0.21	-1.10	0.25	**<.001**
Trust	$^{2\,x}$**4.68**^{a}	0.20	$^{1\,x}$**3.27**^{b}	0.22	$^{2\,y}$**5.50**^{c}	0.22	0.29	0.25	.247	$^{3\,y}$**3.72**^{a}	0.20	$^{2\,y}$**4.69**^{b}	0.22	$^{12\,y}$**4.79**^{b}	0.21	-1.02	0.25	**<.001**
Meta-trust	$^{1\,x}$**5.07**^{a}	0.23	$^{1\,x}$**4.62**^{a}	0.25	$^{1\,y}$**5.42**^{a}	0.25	0.05	0.29	>.250	$^{2\,y}$**3.54**^{a}	0.23	$^{1\,x}$**4.61**^{b}	0.24	^{y}**4.61**^{b}	0.24	-1.07	0.29	**<.001**
Maintenance-rev	$^{2\,y}$**5.20**^{a}	0.20	$^{1\,x}$**3.69**^{b}	0.22	$^{2\,y}$**5.92**^{c}	0.22	0.39	0.25	.125	$^{2\,x}$**5.24**^{a}	0.20	$^{2\,y}$**5.24**^{a}	0.22	$^{12\,y}$**5.39**^{a}	0.21	-0.07	0.25	>.250
Liking	$^{1\,x}$**5.75**^{a}	0.23	$^{2\,x}$**4.37**^{b}	0.25	$^{1\,y}$**6.22**^{a}	0.25	0.45	0.29	.117	$^{2\,y}$**4.44**^{a}	0.23	$^{1\,y}$**5.68**^{b}	0.25	$^{1\,y}$**5.66**^{b}	0.24	-1.22	0.29	**<.001**
	n = 32		*n* = 27		*n* = 27					*n* = 32		*n* = 28		*n* = 29				

Note: Comp = Complementary, Non-comp = Non-complementary. Superscripts *a*, *b* and *c* identify simple mean comparisons between conditions of RelComp. Superscripts *x* and *y* identify simple mean comparisons between conditions of Benefit. Superscripts *1*, *2* and *3* identify simple mean comparisons between conditions of RM across Tables 10 and 11. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$.

4.6.2.2 Manipulation Check

I predicted that Perceived RelComp would be higher in the Complementary condition than the in two the Non-complementary conditions together at each level of Benefit and RM. As expected, planned contrasts showed that Perceived RelComp was higher in the Complementary condition than in the Non-complementary conditions, in the $Beneficial_{RelComp}$ condition and in the $Costly_{RelComp}$ condition of the CS, AR (Table 10) and MP (Table 11) scenarios. Perceived RelComp was also higher in the Complementary condition than in the Non-complementary conditions in the EM (Table 11) scenario, but only in the $Beneficial_{RelComp}$ condition.

Post-hoc tests showed that Perceived RelComp was higher in the Complementary condition when compared with each Non-complementary condition separately, in both the $Beneficial_{RelComp}$ condition and the $Costly_{RelComp}$ condition of the CS and AR scenarios (Table 10). In the $Beneficial_{RelComp}$ condition of the EM and MP (Table 11) scenarios, Perceived RelComp was higher in the Complementary condition than in each Non-complementary condition. However, in the $Costly_{RelComp}$ condition of the EM scenario (Table 11) Perceived RelComp was significantly higher in the Complementary condition than in the Non-complementary AR condition, as expected, but significantly lower in the Complementary condition than in the Non-complementary MP condition. In the $Costly_{RelComp}$ condition of the MP scenario (Table 11), the Complementary condition was not significantly different from neither of the two Non-complementary conditions, when analyzed separately.

4.6.2.3 Effects of RelComp on the Dependent Variables

The predicted effects of RelComp on Positive and Negative Affect, Control, Belonging and Trust would be described by the four-way interaction provided that the differences between the Complementary condition and the two Non-complementary conditions were in the predicted direction across all conditions of Benefit and RM. More specifically I hypothesized that Positive Affect, Negative Affect reversed (Negative Affect-rev), Control, Belonging, Trust and Maintenance reversed (Maintenance-rev) would be higher, in the Complementary condition when compared with the two the Non-complementary conditions together, at each level of Benefit and RM.

As expected, in the $Beneficial_{RelComp}$ condition of the CS, AR, EM and MP scenarios, and in the $Costly_{RelComp}$ condition of the CS and AR scenarios, planned contrasts showed that

Positive Affect, Negative Affect-rev, Control, Belonging, Trust and Maintenance-rev were higher in the Complementary than in the Non-complementary conditions (Tables 10 and 11). However, in the $Costly_{RelComp}$ condition of the EM scenario, planned contrasts showed no significant differences between Complementary and Non-complementary conditions on each dependent measure (Table 11). Unexpectedly, in the $Costly_{RelComp}$ condition of the MP scenario, planned contrasts showed that Positive Affect, Belonging and Trust were lower in the Complementary condition than in the Non-complementary conditions, and that there were no differences between conditions on Negative Affect-rev, Control and Maintenance-rev (Table 11).

A more conservative version of the hypotheses would predict higher ratings of Positive Affect, Negative Affect-rev, Control, Belonging, Trust and Maintenance-rev in the Complementary conditions when compared with each Non-complementary condition separately, with post-hoc tests, at each level of Benefit and RM. As expected, in the $Beneficial_{RelComp}$ condition of the CS, AR, EM and MP scenarios post-hoc tests showed that differences on Positive and Negative Affect-rev, Control, Belonging, Trust, and Maintenance-rev, were significant and in the predicted direction when the Complementary condition was compared with each Non-complementary condition (Tables 10 and 11). Exceptionally, in the $Beneficial_{RelComp}$ condition of the CS scenario, Control and Trust were only statistically higher in the Complementary condition when compared with the Non-complementary MP condition (Table 10).

Likewise, in the $Costly_{RelComp}$ condition of the CS and AR scenarios (Table 10), post-hoc tests showed that differences between the Complementary condition and each Non-complementary condition on Positive Affect, Negative Affect-rev, Control, and Maintenance-rev were statistically significant and in the predicted direction. Belonging was also significantly higher in the Complementary condition when compared with each Non-complementary condition, with the exception of the Non-complementary EM condition of the AR scenario. Trust, on the other hand, was only significantly higher in the Complementary condition when compared with the Non-complementary AR condition of the CS scenario, and with the Non-complementary MP condition of the AR scenario.

In the EM $Costly_{RelComp}$ condition, post-hoc tests (Table 11) showed that Positive Affect, Negative Affect-rev, Control, Belonging, Trust and Maintenance-rev were higher in the Complementary condition than in the Non-complementary AR condition, as predicted, but

unexpectedly lower in the Complementary condition, than in the Non-complementary MP condition.

Finally, in the MP $Costly_{RelComp}$ condition (Table 11), post-hoc tests corroborated the results of the planned contrasts. Positive affect, Belonging and Trust were lower in the Complementary than in each Non-complementary condition separately, and there were no differences between conditions on Negative Affect-rev, Control and Maintenance-rev.

4.6.2.4 Exploratory Analyses

Effects of RelComp on Liking and Meta-trust. According to planned contrasts (Tables 10 and 11), Liking was higher in the Complementary condition than in the Non-complementary conditions, in the $Beneficial_{RelComp}$ condition of CS, AR, EM and MP scenarios, and in the $Costly_{RelComp}$ condition of the CS and AR scenarios. On the other hand, in the $Costly_{RelComp}$ condition of the MP scenario, Liking was lower in the Complementary condition than in the Non-complementary conditions. Consistently, post-hoc tests (Tables 10 and 11) showed that, in the $Beneficial_{RelComp}$ condition, Liking was higher in the Complementary condition than in each Non-complementary condition separately, but only in the AR, EM and MP scenarios. In the $Beneficial_{RelComp}$ condition of the CS scenario, Liking was only higher in the Complementary condition when compared with the MP Non-complementary condition. In the $Costly_{RelComp}$ condition, post-hoc tests revealed that Liking was higher in the Complementary condition of the CS and EM scenarios when compared with the AR Non-complementary condition; and lower in the Complementary condition of the MP scenario when compared with each non-complementary condition, and of the EM scenario when compared with the AR Non-complementary condition. In the $Costly_{RelComp}$ condition of the AR scenario, post-hoc tests showed no differences between conditions.

Likewise, planned contrasts (Tables 10 and 11) showed that Meta-trust was higher in the Complementary condition when compared with the two Non-complementary conditions together, in the $Beneficial_{RelComp}$ condition of CS, AR, EM and MP scenarios. In the $Costly_{RelComp}$ condition, planned contrasts revealed that Meta-trust did not differ between conditions of RelComp, in the AR and EM scenarios, but was higher in the Complementary condition of the CS scenario, and lower in the Complementary condition of the MP scenario, than in the Non-complementary conditions. In the $Beneficial_{RelComp}$ condition, post-hoc tests showed that Meta-trust was higher in the Complementary condition than in each Non-

complementary condition, but only in the CS and AR scenarios (Table 10). In the EM and MP scenarios (Table 11), Meta-trust was only higher when the Complementary condition was compared with the Non-complementary MP condition in the EM scenario, and with the Non-complementary AR condition in the MP scenario. In the $Costly_{RelComp}$ condition, post-hoc tests corroborated the results of planned contrasts for the MP scenario (Table 11). However, in the CS scenario (Table 10) post-hoc tests showed that Meta-trust was higher in the Complementary condition, but only when compared with the AR Non-complementary condition. There were no differences in the AR and EM scenarios.

Differences between conditions of Benefit. The effects of Benefit were explored by comparing the Complementary/ $Beneficial_{RelComp}$ condition with the Complementary/ $Costly_{RelComp}$ condition, and the Non-complementary/ $Beneficial_{RelComp}$ condition with the Non-complementary/ $Costly_{RelComp}$ condition on the dependent measures, in each RM (see post-hoc tests in Table 10 and 11). A theory of Benefit would predict higher ratings of Positive Affect, Negative Affect-rev, Control, Belonging, Trust, Meta-trust, Maintenance-rev and Liking in the conditions that were beneficial to the initiator (i.e., Complementary/ $Beneficial_{RelComp}$ and Non-complementary $Costly_{RelComp}$ condition) than in the conditions that were costly to the initiator (i.e., Complementary/ $Costly_{RelComp}$ and Non-complementary/ $Beneficial_{RelComp}$).

Differently from a Benefit hypothesis, in the CS and AR scenarios there were no differences between the Complementary/ $Beneficial_{RelComp}$ condition and the Complementary/ $Costly_{RelComp}$ condition on the dependent variables, with the exception of Liking in the AR scenario. However, Liking was higher in the Complementary/ $Costly_{RelComp}$ condition, i.e., when the complementary response was costly to the initiator.

In the EM and MP scenarios there were differences between the Complementary/ $Beneficial_{RelComp}$ condition and the Complementary/ $Costly_{RelComp}$ condition on some dependent measures. As predicted by a theory of Benefit, Positive Affect, Negative Affect-rev, Control and Maintenance-rev in the EM scenario, and Positive Affect, Negative Affect-rev, Belonging, Trust, Meta-trust and Liking in the MP scenario were higher in the Complementary/ $Beneficial_{RelComp}$ condition (i.e., when the complementary response was beneficial to the initiator), than in the Complementary/ $Costly_{RelComp}$ condition (i.e., when the complementary response was costly to the initiator). Notice, that Perceived RelComp, was

also higher in the Complementary/ Beneficial$_{RelComp}$ condition, than in the Complementary/ Costly$_{RelComp}$ condition of the EM scenario.

Regarding the Non-complementary/ Beneficial$_{RelComp}$ and Non-complementary/ Costly$_{RelComp}$ conditions, in the Non-complementary MP condition of the CS scenario, in the Non-complementary EM and Non-complementary MP conditions of the AR scenario, in the Non-complementary MP condition of the EM scenario, and in the Non-complementary CS and Non-complementary AR conditions of the MP scenario, all dependent measures—except Trust in Non-complementary MP condition of the AR scenario, and Negative Affect-rev, Control and Meta-trust in the Non-complementary CS condition of the MP scenario—were higher in the Costly$_{RelComp}$ condition (i.e., when the non-complementary conditions were beneficial) than in the Beneficial$_{RelComp}$ condition (i.e., when the non-complementary conditions were costly), as would be predicted by a theory of Benefit. Notice, however, that Perceived RelComp was also higher in the Costly$_{RelComp}$ condition than in the Beneficial$_{RelComp}$ condition of each aforementioned scenario.

On the other hand, contrary to a Benefit hypothesis, all dependent measures in the Non-complementary AR condition of the CS scenario—except Meta-trust—and Belonging in the Non-complementary AR condition of the EM scenario were lower in the Costly$_{RelComp}$ condition (i.e., when the non-complementary conditions were beneficial) than in the Beneficial$_{RelComp}$ condition (i.e., when the non-complementary conditions were costly). Perceived RelComp was also lower in the Costly$_{RelComp}$ condition than in the Beneficial$_{RelComp}$ condition of the Non-complementary AR condition of the CS scenario.

Differences between Non-complementary conditions. As anticipated, the effect of the Non-complementary conditions on the dependent measures varied according to the RM of the Non-complementary response. Post-hoc tests showed that Perceived RelComp differed between the Non-complementary conditions, in both conditions of Benefit of the CS and EM scenarios (Tables 10 and 11). More specifically, in the Beneficial$_{RelComp}$ condition of the CS and EM scenarios, Perceived RelComp was higher in the AR Non-complementary condition than in the MP Non-complementary condition. In the Costly$_{RelComp}$ condition of both scenarios, however, it was the other way around: Perceived RelComp was lower in the AR Non-complementary condition than in the MP Non-complementary condition. Interestingly, the significant differences between the Non-complementary conditions on the dependent variables followed the manipulation check, as illustrated next.

In the Beneficial$_{RelComp}$ condition of the CS and EM scenarios, Positive Affect, Negative Affect-rev, Belonging, Trust and Maintenance-rev were higher in the AR Non-complementary condition than in the MP Non-complementary condition. In the Costly$_{RelComp}$ condition of the CS and EM scenarios, Positive Affect, Negative Affect-rev, Control, Belonging, Trust and Maintenance-rev, were lower in the AR Non-complementary condition than in the MP Non-complementary condition (see Tables 10 and 11).

In the Beneficial$_{RelComp}$ condition of the MP scenario, Perceived RelComp was marginally higher (p = .083) in the CS condition than in the AR Non-complementary condition. Likewise, Positive Affect, Negative Affect-rev, Belonging, Trust and Maintenance-rev were higher in Non-complementary CS condition than in the AR Non-complementary condition.

Furthermore, although there were no significant differences between the Non-complementary conditions of the AR scenario on Perceived RelComp, the differences on Trust, in the Beneficial$_{RelComp}$ condition, and on Belonging, in the Costly$_{RelComp}$ condition, followed the tendency of the manipulation check (Table 10).

Differences between RMs. Differences between RMs were explored by comparing RMs within the Complementary/ Beneficial$_{RelComp}$ condition, the Complementary/ Costly$_{RelComp}$ condition, each Non-complementary/ Beneficial$_{RelComp}$ condition, and each Non-complementary/ Costly$_{RelComp}$ condition on the dependent measures. In general, differences on the dependent variables followed differences on the manipulation check (see post-hoc tests in Tables 10 and 11), as described next.

In the Complementary/ Beneficial$_{RelComp}$ condition, Perceived RelComp was higher in the CS and AR scenarios than in the EM and MP scenarios. With the exception of Control which was higher in AR, the dependent variables were higher in the CS scenario, followed by the AR scenario, and lower in either the EM or MP scenarios. In the Complementary/ Costly$_{RelComp}$ condition, Perceived RelComp was higher in the CS scenario and lower in the EM and MP scenario. With the exception of Control which was higher in AR, of Meta-trust and Negative Affect-rev which did not differ between RMs, the dependent variables were higher in the CS scenario, and lower in either the EM or MP scenarios.

In the first Non-complementary/ Beneficial$_{RelComp}$ condition (see Non-comp AR in CS scenario, Non-comp EM in AR scenario, Non-comp AR in EM scenario, Non-comp CS in MP scenario, in Tables 10 and 11), Perceived RelComp was higher in the AR and MP

scenarios than in the EM and CS scenarios. Likewise, with the exception of Meta-trust which did not differ between RMs, all dependent variables were higher in either the AR or MP scenarios, and lower in either the EM or CS scenarios. In the first Non-complementary/ $Costly_{RelComp}$ condition, Perceived RelComp was higher in the CS than in the EM, MP and AR scenarios. Similarly, with the exception of Meta-trust which did not differ between RMs, all dependent variables were higher the CS scenario, and lower in either the AR or MP scenario.

In the second Non-complementary/ $Beneficial_{RelComp}$ condition (see Non-comp MP in CS scenario, Non-comp MP in AR scenario, Non-comp MP in EM scenario, Non-comp AR in MP scenario, in Tables 10 and 11), Perceived RelComp was higher in the EM scenario than in the MP, AR, and CS scenarios. Likewise, with the exception of Meta-trust and Liking which did not differ between RMs, all dependent variables were higher in the EM, scenario. In the second Non-complementary/ $Costly_{RelComp}$ condition, Perceived RelComp was higher in the AR scenario and lower in the MP scenario. Similarly, with the exception of Liking which was higher in CS, and of Negative Affect-rev and Meta-trust which did not differ between RMs, all dependent variables were higher the CS scenario, and lower in either the AR or MP scenario.

4.6.3 Discussion

The main goal of the current study was to test the hypotheses that participants would experience higher Positive Affect, Control, Belonging, Trust, and lower Negative Affect and Maintenance, in complementary interactions than in non-complementary interactions.

In addition, since experiencing RelComp from the initiator's perspective is usually confounded with getting a benefit from the respondent—as in the social interactions described in Study 1 scenarios—a second goal of this study was to rule out the effects of Benefit from the effects of RelComp, and show that the effects observed in Study 1 are better explained by RelComp than by Benefit. This was achieved by manipulating two conditions of Benefit. In the first condition, the $Beneficial_{RelComp}$ condition, the complementary responses were more beneficial to the initiator than the non-complementary responses. In the second condition, the $Costly_{RelComp}$ condition, the complementary responses were more costly to the initiator than the non-complementary responses. This way, whereas in the $Beneficial_{RelComp}$ condition RelComp and Benefit were manipulated in the same direction, in the $Costly_{RelComp}$ condition they were manipulated in opposite directions, i.e., against each other.

Finally, in Study 1 the respondent either implemented the complementary RM—in the Complementary condition—or did not implement a RM at all—in the Non-complementary condition. In Study 2, however, Non-complementarity was operationalized with the respondent implementing one of two possible RMs that were different from the RM applied by the initiator. The goal was to test whether the effects observed in Study 1 were robust when the respondent, instead of not implementing a RM, implemented an alternative one.

The effects observed in Study 1 were successfully replicated. When RelComp was beneficial to the initiator ($Beneficial_{RelComp}$ condition), participants in CS, AR, EM and MP scenarios experienced higher Positive Affect, Control, Belonging, Trust, and lower Negative Affect and Maintenance, in complementary interactions than in non-complementary interactions. When analyzing each Non-complementary condition separately, all differences were statistically significant with two exceptions: when the Complementary condition was compared with the Non-complementary AR condition of the CS scenario the differences on Control and Trust were not significant.

When RelComp was costly to the initiator ($Costly_{RelComp}$ condition), however, the hypotheses were only partially supported. Positive Affect, Control, Belonging and Trust were higher, and Negative Affect and Maintenance were lower, in the Complementary condition when compared with the Non-complementary conditions of the CS and AR scenarios, and with the Non-complementary AR condition of the EM scenario. When each Non-complementary condition was analyzed separately in the CS and AR scenarios, all differences were statistically significant with three exceptions: when the Complementary condition was compared with the Non-complementary EM condition of the AR scenario differences on Belonging and Trust were not significant; and when the Complementary condition was compared with the Non-complementary MP condition of the CS scenario differences on Trust were also not significant. With these exceptions, the hypotheses were supported, even though complementarity was more costly to the initiator than non-complementarity.

On the other hand, when the costly Complementary condition (in the $Costly_{RelComp}$ condition) was compared with the Non-complementary MP condition of the EM scenario, and with the two Non-complementary conditions of the MP scenario, the differences on the dependent variables were either not significant or significant but in the opposite direction to the one predicted.

Put differently, the hypotheses on most dependent variables were supported by the majority of the available comparisons between Complementary and Non-complementary responses across conditions of Benefit and RM. For each dependent variable, on each condition of Benefit, there were eight comparisons available to test the hypotheses: Complementary vs. Non-complementary RM1 and Complementary vs. Non-complementary RM2, for each of the four RM scenarios. In the $\text{Beneficial}_{\text{RelComp}}$ condition, eight comparisons supported the hypotheses for Positive Affect, Negative Affect, Belonging and Maintenance; and seven comparisons supported the hypotheses for Control and Belonging. In the $\text{Costly}_{\text{RelComp}}$ condition, five among the eight comparisons available supported the hypotheses for Positive Affect, Negative Affect, Control and Maintenance; four comparisons supported the hypotheses for Belonging, and three comparisons supported the hypothesis for Trust. Since in the $\text{Costly}_{\text{RelComp}}$ condition the effects of RelComp ran against the effects of Benefit, the results showed that, in these conditions, the effects of RelComp on the dependent variables were sufficiently robust to override the effects of Benefit.

In contrast, a theory of Benefit would be supported, in the $\text{Costly}_{\text{RelComp}}$ condition, by significant differences between conditions of RelComp in the opposite direction to the one predicted. Indeed, in the EM scenario, Positive Affect, Control, Belonging and Trust were lower, and Negative Affect and Maintenance were higher, in the Complementary condition than in the Non-complementary MP condition. Similarly, in the MP scenario, Positive Affect, Belonging and Trust were lower in the Complementary condition than in the Non-complementary conditions. Hence, the Benefit hypothesis was supported for Negative Affect, Control, and Maintenance by only two of the eight available comparisons, and for Positive Affect, Belonging and Trust by three comparisons.

In sum, even though Benefit did have an effect on some dependent variables in some RM scenarios, these effects were less consistent than the overall effects of RelComp. On most dependent variables, the RelComp hypothesis was supported by a larger number of comparisons than the Benefit hypothesis. Hence, the results show that the effects observed in Study 1 and in the $\text{Beneficial}_{\text{RelComp}}$ condition of Study 2 can be better explained by RelComp than by Benefit. The conditions in which the hypotheses were not supported are discussed in what follows. Crucially, the results that did not support the experimental hypotheses were still consistent with the theoretical predictions, insofar as variations on the manipulation check are taken into account.

First, in the CS scenario, when RelComp was beneficial ($Beneficial_{RelComp}$ condition), despite being significantly higher in the Complementary condition, Perceived RelComp was still high (≈ 5) in the Non-complementary AR condition. Hence, the lack of statistically significant differences between the two conditions on Control and Trust can, to some extent, be explained by the high levels of Perceived RelComp in the two conditions.

Likewise, when RelComp was costly ($Costly_{RelComp}$ condition), Perceived RelComp was also high in the Non-complementary MP condition of the CS scenario (= 4.30) and in the Non-complementary EM condition of the AR scenario (= 4.72), even though it was significantly higher in the Complementary condition. Therefore, the lack of differences on Belonging, in the AR scenario, and on Trust, in the CS and AR scenarios, relative to the Complementary condition can be also explained by the high levels of Perceived RelComp in these conditions.

Second, in the EM scenario, when RelComp was costly ($Costly_{RelComp}$ condition) and the Complementary condition was compared with the Non-complementary MP condition, the results were in a direction opposite to what was predicted. Positive Affect, Control, Belonging and Trust were higher, whereas Negative Affect and Maintenance were lower, in the Non-complementary MP condition than in the Complementary condition. Still, consistently with the theory, the Non-complementary MP response was perceived as more complementary than the Complementary response, as shown by the results on the manipulation check. Therefore, one explanation for these results is that Positive Affect, Control, Belonging and Trust were higher, whereas Negative Affect and Maintenance were lower, in the conditions that were perceived as more complementary than in those perceived as less complementary. These results are correlational evidence in support of the theory, which alone do not allow ruling out the effect of Benefit, since the response perceived as the most complementary was also the most beneficial to the initiator. However, since Benefit cannot explain the differences between the Complementary condition and the Non-complementary AR condition, these results altogether suggest that RelComp is a more satisfactory explanation.

Third, in the MP scenario, when RelComp was costly ($Costly_{RelComp}$ condition), there were no differences between conditions on Negative Affect, Control and Maintenance, and the effects of RelComp on Positive Affect, Belonging, and Trust were in the opposite direction to what was expected. One interpretation of these results is that, in MP interactions, need fulfillment and affective states are more strongly affected by benefits than by RelComp,

or, at least, are equally affected by both. However, once again, the results on the manipulation check suggest an alternative explanation. Perceived RelComp was equally high (> 4) in all conditions of RelComp, which shows that the manipulation of RelComp was unsuccessful. Therefore, when RelComp was costly in the MP scenario—meaning that the non-complementary responses were beneficial—the lack of differences between conditions of RelComp on Negative Affect, Control and Maintenance can be better explained by the lack of differences in Perceived RelComp than by the higher benefits of the Non-complementary responses. On the other hand, the negative differences between Complementary and Non-complementary conditions on Positive Affect, Belonging, and Trust cannot be interpreted as an overriding effect of Benefit over RelComp, but instead, as reflecting either effects of Benefit, or effects of the RM of the response (i.e., MP in complementary condition, CS and AR in the non-complementary conditions), when Perceived RelComp is constant.

In addition to effects of RelComp, differences between conditions of Benefit when RelComp was constant were also explored, by comparing beneficial Complementary conditions ($\text{Beneficial}_{\text{RelComp}}$ condition) with costly Complementary conditions ($\text{Costly}_{\text{RelComp}}$ condition), and beneficial Non-complementary conditions ($\text{Costly}_{\text{RelComp}}$ condition) with costly Non-complementary conditions ($\text{Beneficial}_{\text{RelComp}}$ condition). When the beneficial Complementary conditions were compared with the costly Complementary conditions, affect and need fulfillment were only significantly improved with benefits in the EM and MP scenarios, whereas in the complementary conditions of the CS and AR scenarios benefits did not make a difference. On the other hand, benefits improved affect and need fulfillment among the Non-complementary conditions, but only in each Non-complementary condition of the AR and MP scenarios, and in the Non-complementary MP conditions of the CS and EM scenarios. In the Non-complementary AR condition of the EM scenario differences were not significant, and in the Non-complementary AR condition of the CS scenario affect and need fulfillment were actually improved in the costly condition (i.e., $\text{Beneficial}_{\text{RelComp}}$ condition). These results suggest that, although Benefit alone cannot fully explain the effects observed, benefits do matter to affect and need fulfillment, at least in some kinds of interactions or relationships, and especially when interactions are non-complementary.

Once again, however, most comparisons between beneficial and costly conditions were followed by the results on the manipulation check. The beneficial responses were perceived as more complementary than the costly responses in most conditions of RelComp in which affect and need fulfillment were improved by benefit, namely the Complementary condition

of the EM scenario, the two Non-complementary conditions of the AR and MP scenarios, and the Non-complementary MP condition of the CS and EM scenarios. On the other hand, in the Non-complementary AR condition of the CS scenario, in which affect and need fulfillment were improved in the costly conditions, the costly response was perceived as more complementary than the beneficial response. These results are consistent with the idea that need fulfillment and affect are improved in interactions that are perceived as more complementary, and, hence, reinforce the argument that Benefit alone cannot fully explain the effects observed.

The previous paragraph illustrates that some beneficial Complementary and Non-complementary responses were rated higher on Perceived RelComp than the costly counterparts. Why was that so? One explanation is that Benefit is one aspect of perceived RelComp. This means that responses by the partner should be perceived as more complementary the more beneficial they are to the initiator. However, the fact that this was not true of all conditions or RelComp across RMs suggests that Benefit—like Expectation in Study 1—is not necessary for experiencing RelComp.

A more subtle explanation is that the perceived intentions of the respondent to benefit the initiator, rather than actual tangible benefits, are one aspect of RelComp. This means that responses by the partner should be perceived as more complementary the stronger the underlying perceived intentions to benefit the initiator, regardless of the benefits actually obtained. For example, in the CS scenario, the Non-complementary AR response communicated a stronger intention to benefit the initiator, and was perceived as more complementary in the $\text{Beneficial}_{\text{RelComp}}$ condition, when the respondent accepted to help the initiator paint his apartment ("*Ok. We start at 7:00 am. Please have all the tools ready and pick me up at my place by 6:30. Don't be late*"), than in the $\text{Costly}_{\text{RelComp}}$ condition, when the respondent refused the initiator's offer to help him paint the apartment ("*Yes, Peter. For the moment it seems I don't need you because I have another assistant. But I want you to be on standby, just in case. Please, don't make any plans for that day without talking to me first*"), even though the later was objectively less costly to the initiator than the former relatively to the Complementary condition. Likewise, the Non-complementary MP response of the CS scenario communicated a stronger intention to benefit the initiator, was perceived as more complementary, and was actually more beneficial relatively to the complementary condition, in the $\text{Costly}_{\text{RelComp}}$ condition ("*Sure, Peter. Great! In that case I'll pay you 40$ for half-day work*") than in the $\text{Beneficial}_{\text{RelComp}}$ condition ("*Sure. I'll take about 40$ for the work*").

However, the fact the Complementary responses did not differ in perceived RelComp between $Beneficial_{RelComp}$ and $Costly_{RelComp}$ conditions in the CS and AR scenarios, suggests that perceived intentions of the partner to benefit oneself may be especially relevant for Perceived RelComp when responses are Non-complementary.

Another goal of this study was to explore whether differences between complementary and non-complementary responses could vary depending on the RM of the non-complementary response. The fact that the hypotheses were not supported in some conditions when the two Non-complementary responses were analyzed separately showed that the RM of the non-complementary response did make a difference on some dependent variables. In addition, the role of the RM of the non-complementary responses was also supported by differences between Non-complementary conditions. First, the results on the manipulation check showed that, in both CS and EM scenarios, Perceived RelComp was higher in the Non-complementary AR conditions than in the Non-complementary MP conditions, when RelComp was beneficial ($Beneficial_{RelComp}$ condition), and higher in the Non-complementary MP conditions than in the Non-complementary AR conditions, when RelComp was costly ($Costly_{RelComp}$ condition). Second, and consistently with the theoretical proposal, Perceived RelComp was associated to differences on need fulfillment and affective states between the Non-complementary conditions.

The differences between Non-complementary responses on the manipulation check, in the CS and EM scenarios, were consistent with the view that perceived intentions of the respondent to benefit the initiator played a role on Perceived RelComp. In the $Beneficial_{RelComp}$ condition, the Non-complementary AR responses of the CS ("*Ok. We start at 7:00 am. Please have all the tools ready and pick me up at my place by 6:30. Don't be late*") and EM scenarios ("*You're a great driver, Paul. I am going to the office tomorrow and I want to be there one hour earlier, so I'll pick you up at 6:30. Note that you have to get up earlier, so please be on time*"), which were rated as more complementary, were also more beneficial to the initiator than the Non-complementary MP responses ("*Sure. I'll take about 40$ for the work*"; "*Thanks' for the ride Paul. We go in my car tomorrow. I have to take the Jeep, which consumes a lot. So I would like to ask you to bring $15 for gas and the ride.*"). Likewise, in the $Costly_{RelComp}$ condition, the Non-complementary MP responses of the CS ("*Sure, Peter. Great! In that case I'll pay you 40$ for half-day work*") and EM scenarios ("*Ok, Paul. Here's 15$ for gas and the ride, before I forget…*") were also more beneficial to the initiator and perceived as more complementary than the Non-complementary AR

responses ("*Yes, Peter. For the moment it seems I don't need you because I have another assistant. But I want you to be on standby, just in case. Please, don't make any plans for that day without talking to me first*"; "*Ok, Paul. But we're going later tomorrow. I want you to pick me up at 9:00 instead of 7:00, but no later than that. Please be on time.*").

In sum, it is possible that the differences between Non-complementary responses on the manipulation check and, consequently, on the dependent variables, both within and across conditions of Benefit, were caused by differences in perceived intentions by the respondent to benefit the initiator. This possibility has some relevant implications. First, it supports the theoretical proposal presented in the Chapter 2 that RelComp can be experienced in different degrees, depending on whether actions, psychological states (e.g., intentions, emotions), or actions *and* psychological states of both participants are perceived as fitting together. In this case, the Non-complementary responses should be perceived as reflecting non-complementary intentions, i.e., intentions by each participant to apply different RMs. However, a non-complementary intention by the respondent to benefit the initiator can be perceived as fitting the initiator's intentions better, than any non-complementary intention that disregards the initiators interests. This is plausible because when the respondent applies an alternative RM—instead of no RM—he or she is communicating an intention to continue relating with the initiator, but in a different way. The more beneficial the alternative RM is to the initiator, the more likely it is to be perceived as an acceptable alternative to the RM initially applied. Therefore, the second implication is that benefits or, more precisely, beneficial intentions do matter for RelComp, affect and need fulfillment, especially when interactions are non-complementary. Finally, the third implication is that the process of relating can very flexible and dynamic, because in the same social context there may be more than one relational pattern sanctioned by cultural standards and individual motivations. Hence, even when participants fail to apply a common RM, coordination is still possible to achieve to the extent that the alternative RMs are perceived as acceptable enough to structure the interaction. If the relational pattern corresponding to the new RM is evaluated by the partner as acceptable it becomes shared by both participants as a collective goal-state guiding the actions of each. Once the alternative relational pattern is fulfilled by means of each participant doing one's part, the effects of RelComp are experienced in the same way.

One of the reasons why this study failed to rule out the effects of Benefit on the EM and MP scenarios was the unsuccessful manipulation of RelComp in the $\text{Costly}_{\text{RelComp}}$ condition. The results on the manipulation check showed that the Non-complementary MP condition of

the EM scenario was perceived as more complementary than the Complementary condition, and that the Non-complementary conditions of the MP scenario were perceived as complementary as the Complementary condition. So far, I have discussed the differences between conditions of Benefit, and differences between Non-complementary conditions on the manipulation check and dependent variables. I suggested that such differences on affect and need fulfillment can be explained by differences on the manipulation check, which, in turn, can be explained by benefits or perceived intentions of the respondent to benefit the initiator. Likewise, it is possible that perceived beneficial intentions by the respondent increased Perceived RelComp, and improved affect and need fulfilment in the Non-complementary MP condition of the EM scenario, and in the two Non-complementary conditions of the MP scenario. However, neither benefits nor perceived beneficial intentions by the partner can explain the effects of RelComp, in the $\text{Costly}_{\text{RelComp}}$ condition, in the CS and AR scenarios, and in the EM scenario, when the Complementary condition was compared with the Non-complementary AR condition. Therefore, it is possible that other processes took place. In what follows, I suggest that the descriptions presented to participants in the EM and MP scenarios were unclear about specific aspects of the social interaction, and that this might have led participants to interpret the scenarios differently from what was intended by the experimenter.

In the EM scenario, participants read the description "*Exceptionally, Paul does not have to be at the office before 10:00 tomorrow, but he does not mention that to Michael. In fact, Paul is still willing to wake up earlier and give Michael a ride."* However, it is possible that the description was not clear about whether the respondent knew that the initiator had to be at the office later. It has been empirically demonstrated that unexpected non-contingent benefits elicit the emotion of gratitude towards the benefactor (Simão & Seibt, 2014, 2015). Hence, if the respondent knew that the initiator would experience the personal unexpected cost of going to the office earlier than necessary in order to give him a ride, then, he should show appreciation for that effort in some way. Consistently, some comments by participants in the open-ended questions suggest that the Complementary response did not express enough gratitude for the initiator's gesture. For example, participants in the Complementary condition wrote: "I would have liked Michael to thank me for being generous with my time and volunteering to leave earlier than I need to"; "He should be more happy I am giving him a ride even though I do not have to be at the office at the same time"; "I wish he was more grateful". This explains why the Complementary condition of the EM scenario on the

Costly$_{RelComp}$ condition was rated the lowest on Perceived RelComp among the Complementary conditions of all RM scenarios. Additionally, the Non-complementary MP condition (*Ok, Paul. Here's 15$ for gas and the ride, before I forget…*") could have been interpreted as a sign of appreciation for that effort. In fact, participants in this condition wrote: "Delighted because you get compensated by going to the office too early"; "He's showing appreciation for the effort put into getting him to work on time". This would explain why this condition was rated as more complementary than the Complementary condition of the EM scenario ("*Oh, you're right, It is your turn. See you tomorrow*").

Similarly, the MP scenario was unclear about whether the repair was within the warranty period of the equipment. Consistently, participants in the three conditions of RelComp wrote in the open-ended questions: "I would wonder if the work has any guarantee or warranty", "Am I under warranty still?", "It must still be under warranty". If participants thought that the repair could be covered by the warranty period, then, they could have interpreted the Non-complementary response (i.e., refusing payment) as part of an alternative relational pattern (a service covered by the warranty), which was evaluated as valid and equally acceptable as the relational pattern intended initially (paying for a service). This would explain the high levels of Perceived RelComp in the Non-complementary conditions. The issue of the warranty period will be addressed in Study 3.

In addition to the hypothesized effects, the effects of RM on the dependent variables, and the effects of RelComp on Meta-trust and Liking were also explored. The differences between RMs on the dependent variables were not consistent across conditions of RelComp and Benefit. Moreover, similarly to RelComp and Benefit, the effects of RM on the dependent variables were followed by the manipulation check on each condition of RelComp, suggesting that most of the effects observed can be explained by perceived RelComp.

Regarding Liking and Meta-trust, when RelComp was beneficial (Beneficial$_{RelComp}$ condition), participants liked the respondent better and felt more trusted by the partner in complementary interactions, in all RM scenarios. However, when RelComp was costly (Costly$_{RelComp}$ condition), Liking and Meta-trust were also generally higher in the Complementary condition but less consistently than the other dependent variables. Consistently with Study 1, these results suggest RelComp increases liking for the partner, and makes the initiator feel more trusted by the responded. However, the two variables seem to be more sensitive to benefits than the remaining.

Even though a theory of RelComp seems to be a more satisfactory explanation of the results than a theory of Benefits, there is a third alternative explanation to the predicted effects of RelComp that were observed. It is possible that responses in the Complementary condition were phrased in a more positive or agreeable way than responses in the Non-complementary conditions. Hence, differences on the manipulation check and dependent variables reflected the positive or negative tone of the responses, and not RelComp itself. A theoretical argument against this explanation is that evaluations about the positivity or agreeableness of the partner's responses to our action result from the perceived complementarity of his or her responses, and not the other way around. Hence, complementary responses should, in general, be evaluated as more positive and agreeable than non-complementary responses. A technical argument is that this explanation does not apply to all comparisons that supported the hypotheses. For example, in the $\text{Costly}_{\text{RelComp}}$ condition, the Non-complementary MP response of the CS scenario ("*Sure, Peter. Great! In that case I'll pay you 40$ for half-day work*") was not necessarily less positive or agreeable than the Complementary response ("*Yes, buddy, I could use some help, thanks a lot!*"). Nevertheless, Perceived RelComp and ratings on the dependent variables, although moderately high (> 4), were still lower in the Non-complementary condition than in the Complementary condition.

4.7. Study 3

Since in Study 2 the effect of Benefit was not ruled out from the effect of RelComp in the MP interaction, this study is a follow-up on Study 2 with a modified version of the MP scenario. One limitation of the MP scenario in the $\text{Costly}_{\text{RelComp}}$ condition of Study 2 was that the Complementary and Non-complementary conditions were rated as equally complementary in the manipulation check. I suggested that this lack of differences might be due to the fact that the scenario was unclear about whether the repair was within the warranty period of the equipment. If participants assumed that the repair was part of the warranty, then the Non-complementary condition, which consisted of refusing payment for the job, were theoretically more complementary than the Complementary condition, which consisted of accepting the payment. In order to avoid such problem, the scenario in Study 3 introduced information about the warranty period.

In addition, in open ended comments to the MP scenario in Study 2, some participants reported uncertainty about $80 being a fair price for the repair. Therefore, information about the market price range for repairs was also presented in the scenario.

4.7.1 Methods

4.7.1.1 Participants

Two-hundred and three residents in the U.S.A. (99.5% U.S. nationals; 53.2% males, ages between 18 and 73; M^{age} = 36.25, *SD* = 12.13) were recruited through the online crowdsourcing marketplace Amazon Mechanical Turk and completed a 10-minute online questionnaire for $1. Forty-three percent had a high-school diploma or equivalent, 38.4% had bachelor degree, 12.4% had a master or PhD degree, 5.4% had a post-secondary non-degree award, and one participant had less than high school.

4.7.1.2 Design

This was a 3(Complementary vs. CS Non-complementary vs. AR Non-complementary) x 2($\text{Beneficial}_{\text{RelComp}}$ vs. $\text{Costly}_{\text{RelComp}}$) factorial design. Each participant was randomly assigned to one of six scenarios describing an MP interaction between one initiator and one respondent.

4.7.2.3 Materials and Procedure

The procedures for informing participants about purpose of the study, the voluntary nature of their participation, confidentiality and anonymity of their answers, the contact of the main investigator for further information, as well as for administering the manipulations and the dependent measures, and for debriefing the participants were the same as in Study 2. The dependent variables and manipulation check were also the same as in Study 2.

Scenarios. The MP scenario was the same used in Study 2, except new information was added to the context description, namely, information about the warranty period on both $\text{Beneficial}_{\text{RelComp}}$ ("*The company sent him to visit a costumer, Jack, to fix his broken dishwasher, which is out of the warranty for about a year*") and $\text{Costly}_{\text{RelComp}}$ scenarios ("*Phillip has a broken dishwasher which is out of the warranty for about a year*"), and about the market price range for a repair in the $\text{Costly}_{\text{RelComp}}$ scenario ("*He called a few repair companies and did some homework about the average cost of such service. Phillip estimated the repair cost should range between $80 and $150 and made an appointment with the company that seemed most reliable at a competitive price*"). Information that the equipment was successfully repaired was also given on both scenarios. Complementary and Non-complementary responses in both scenarios were the same as in Study 2 (see full description of the scenarios in Appendix L).

Measures. The items were the same used in Study 2 to measure Liking (M = 5.00, SD = 1.45, Min. = 1, Max. = 7), Positive Affect (M = 4.95, SD = 1.69, Min. = 1, Max. = 7) and Negative Affect (M = 3.14, SD = 1.80, Min. = 1, Max. = 7), Maintenance (α = .91, M = 2.93, SD = 1.47, Min. = 1.00, Max. = 6.75), Control (α = .79, M = 4.21, SD = 1.15, Min. = 1.67, Max. = 7.00), initiator's Trust (α = .86, M = 4.07, SD = 1.28, Min. = 1.00, Max. = 7.00), initiator's Meta-trust (α = .85, M = 4.30, SD = 1.06, Min. = 1.60, Max. = 7.00), Belonging (α = .88, M = 4.67, SD = 1.28, Min. = 1.20, Max. = 7.00), and Perceived RelComp (α = .97, M = 4.27, SD = 1.47, Min. = 1.15, Max. = 7.00). A mean score between the items of each scale was computed and treated as dependent variable as in the previous studies.

4.7.2 Results

Correlations between all measures are shown in Table 12. Perceived RelComp, Positive and Negative Affect, Control, Belonging, Trust, Maintenance and Liking correlated strongly with one another ($r \geq |.50|$). Meta-trust correlated moderately ($r > |.30|$) to strongly ($r \geq |.50|$) with the other measures.

Table 12 – Pearson correlations between all measures

		1	2	3	4	5	6	7	8	9
RelComp	1	1.00	**.79****	**-.74****	**.77****	**.63****	**.64****	**.31****	**-.79****	**.64****
Pos. Affect	2		1.00	**-.83****	**.65****	**.76****	**.72****	**.34****	**-.78****	**82****
Neg. Affect	3			1.00	**-.59****	**-.66****	**-.61****	**-.29****	**.72****	**-.67****
Control	4				1.00	**.57****	**.58****	**.32****	**-.73****	**.56****
Belonging	5					1.00	**.79****	**.59****	**-.72****	**.74****
Trust	6						1.00	**.62****	**-.65****	**.71****
Meta-trust	7							1.00	**-.32****	**.40****
Maintenance	8								1.00	**-.70****
Liking	9									1.00

* $p < .05$; ** $p < .01$.

A 3(Complementary vs. CS Non-complementary vs. AR Non-complementary) x 2($\text{Beneficial}_{\text{RelComp}}$ vs. $\text{Costly}_{\text{RelComp}}$) Multivariate GLM was conducted on all dependent variables and manipulation check using IBM SPSS 23. As in Study 2, the hypotheses were tested by comparing each complementary condition with the two non-complementary conditions together with planned contrasts (1, -0.5, -0.5) on each dependent variable, at each level of Benefit. The planned contrasts were defined with the /LMATRIX subcommand. Second, differences between the Complementary condition and each Non-complementary condition separately, at each level of Benefit, were examined with Bonferroni adjusted post-hoc tests. Mean differences between conditions of Benefit at each level of RelComp were also explored with post-hoc tests. Significance tests were estimated with a 95% CI.

4.7.2.1 Preliminary Analysis

Multivariate tests showed that the effects of RelComp, $F(18, 378) = 7.44$, $p < .001$, $\eta_p^2 = .26$, Benefit, $F(9, 189) = 14.41$, $p < .001$, $\eta_p^2 = .41$, the two-way interaction, $F(18, 378) = 3.80$, $p < .001$, $\eta_p^2 = .15$, were statistically significant, as well as the planned contrasts on the $\text{Beneficial}_{\text{RelComp}}$, $F(9, 189) = 2.40$, $p = .013$, $\eta_p^2 = .10$, and $\text{Costly}_{\text{RelComp}}$ scenarios, $F(9, 189) = 11.36$, $p < .001$, $\eta_p^2 = .35$. The Univariate tests of the main effects and two-way interaction on each dependent variable and manipulation check are presented in Table 13. Estimated marginal means, standard errors, significance tests and effect sizes are displayed in Table 14, for the main effects, and in Table 15 for the two- way interaction.

Table 13 – Univariate tests of main effects and two- and three-way interactions on each manipulation check and dependent variable

	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2
	RelComp				Benefit				RelComp*Benefit			
RelComp	2	**21.88**	**<.001**	**.18**	1	**35.21**	**<.001**	**.15**	2	0.42	>.250	-
Positive Affect	2	**13.93**	**<.001**	**.12**	1	**47.17**	**<.001**	**.19**	2	**3.18**	**.044**	**.03**
Negative Affect	2	**9.55**	**<.001**	**.09**	1	**23.54**	**<.001**	**.11**	2	**4.28**	**.015**	**.04**
Control	2	**16.96**	**<.001**	**.15**	1	**11.71**	**.001**	**.06**	2	1.69	.186	.02
Belonging	2	**14.27**	**<.001**	**.13**	1	**43.66**	**<.001**	**.18**	2	**14.10**	**<.001**	**.13**
Trust	2	2.66	.073	.03	1	**61.57**	**<.001**	**.24**	2	**5.41**	**.005**	**.05**
Meta-trust	2	**3.29**	**.039**	**.03**	1	0.36	>.250	-	2	**6.53**	**.002**	**.06**
Maintenance	2	**16.00**	**<.001**	**.14**	1	**53.88**	**<.001**	**.22**	2	2.84	.061	.03
Liking	2	**6.89**	**.001**	**.07**	1	**54.97**	**<.001**	**.22**	2	**8.14**	**<.001**	**.08**
Error	197				197				197			

4.7.2.2 Manipulation Check

There was a significant main effect of RelComp on the manipulation check which was not qualified by an interaction with Benefit (Table 13). As expected, Perceived RelComp was higher in the Complementary condition than on each Non-complementary condition (Table 14). Furthermore, as expected, planned contrasts and post-hoc comparisons for the two-way interaction (Table 15) showed that these differences were robust in each condition of Benefit.

Post-hoc tests also showed that the CS and AR Non-complementary conditions were rated as equally non-complementary (< 4), in the $\text{Beneficial}_{\text{RelComp}}$ scenario, and as equally complementary (> 4) in the $\text{Costly}_{\text{RelComp}}$ scenario.

Table 14 - Estimated Marginal Means and Standard Errors for the main effects.

	Comp		Non-comp CS		Non-comp AR		RelComp Beneficial		RelComp Costly	
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
RelComp	**5.11**^{a}	0.15	**3.97**^{b}	0.15	**3.79**^{b}	0.15	**3.77**^{a}	0.12	**4.81**^{b}	0.13
Positive Affect	**5.57**^{a}	0.17	**5.05**^{a}	0.18	**4.28**^{b}	0.17	**4.28**^{a}	0.14	**5.66**^{b}	0.15
Negative Affect	**2.58**^{a}	0.20	**3.02**^{a}	0.20	**3.78**^{b}	0.20	**3.68**^{a}	0.16	**2.57**^{b}	0.16
Control	**4.79**^{a}	0.13	**4.08**^{b}	0.13	**3.78**^{b}	0.13	**3.96**^{a}	0.10	**4.46**^{b}	0.11
Belonging	**4.73**^{a}	0.13	**5.15**^{a}	0.13	**4.19**^{b}	0.13	**4.20**^{a}	0.10	**5.18**^{b}	0.11
Trust	**4.18**^{a}	0.13	**4.24**^{a}	0.13	**3.84**^{a}	0.13	**3.48**^{a}	0.11	**4.69**^{b}	0.11
Meta-trust	**4.22**^{ab}	0.12	**4.56**^{a}	0.12	**4.13**^{b}	0.12	**4.26**^{a}	0.10	**4.35**^{a}	0.10
Maintenance	**2.37**^{a}	0.15	**2.81**^{a}	0.15	**3.55**^{b}	0.15	**3.54**^{a}	0.12	**2.27**^{b}	0.12
Liking	**5.25**^{a}	0.15	**5.26**^{b}	0.15	**4.58**^{a}	0.15	**4.39**^{a}	0.12	**5.66**^{b}	0.12
	n = 68		*n* = 67		*n* = 68		*n* = 105		*n* = 98	

Note: Simple mean comparisons between conditions are identified with superscripts *a* and *b*. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$. See effect sizes in Table 13.

4.7.2.3 Effects of RelComp on the Dependent Variables

I predicted higher ratings on Positive Affect, Belonging, Control and Trust, and lower ratings on Negative Affect and Maintenance in the Complementary condition than in the two Non-complementary conditions together, in both conditions of Benefit. As expected, planned contrasts showed that in the $\text{Beneficial}_{\text{RelComp}}$ condition the dependent variables differed significantly, and in the predicted direction, between the Complementary condition and the two Non-complementary conditions (Table 15).

In the $\text{Costly}_{\text{RelComp}}$ condition, Positive Affect and Control were also significantly higher in the Complementary condition than in the Non-complementary conditions. Unexpectedly, Belonging was lower, and Maintenance was higher, in the Complementary than in the Non-complementary conditions, whereas Trust and Negative Affect did not significantly differ between conditions (Table 15).

The more conservative version of the hypotheses would predict higher ratings of Positive Affect, Control, Belonging and Trust, and lower ratings of Negative Affect and Maintenance, in the Complementary conditions when compared with each Non-complementary condition separately with post-hoc tests, at each level of Benefit. These hypotheses would be supported by main effects of RelComp on the dependent variables, showing that the predicted differences were constant across conditions of Benefit, or by two-way interactions showing

that the predicted differences were weakened or enlarged across conditions of Benefit. The main effect of RelComp was significant on the dependent variables, with the exception of Trust, and the two-way interaction was significant on the dependent variables with the exception of Control and Maintenance.

Table 15 - Estimated marginal means, standard errors, planned contrasts and post-hoc tests, and effect sizes for the two-way interaction.

	Comp		Non-comp CS		Non-comp AR			Contrast Comp vs. Non-Comp			
	M	*SE*	*M*	*SE*	*M*	*SE*	η_p^2	*Est.*	*SE*	*p*	η_p^2
					RelComp Beneficial						
RelComp	^{x} **4.53**^{a}	0.21	^{x} **3.56**^{b}	0.21	^{x} **3.21**^{b}	0.21	.10	1.14	0.26	**< .001**	**.09**
Positive Affect	^{x} **5.06**^{a}	0.24	^{x} **4.54**^{a}	0.24	^{x} **3.23**^{b}	0.24	.13	1.17	0.30	**< .001**	**.07**
Negative Affect	^{x} **2.89**^{a}	0.27	^{x} **3.34**^{a}	0.27	^{x} **4.80**^{b}	0.27	.12	-1.19	0.34	**.001**	**.06**
Control	^{x} **4.54**^{a}	0.18	^{x} **3.99**^{a}	0.18	^{x} **3.36**^{b}	0.18	.10	0.87	0.22	**< .001**	**.08**
Belonging	^{x} **4.65**^{a}	0.18	^{x} **4.79**^{a}	0.18	^{x} **3.17**^{b}	0.18	.21	0.67	0.22	**.003**	**.05**
Trust	^{x} **3.90**^{a}	0.19	^{x} **3.60**^{a}	0.19	^{x} **2.94**^{b}	0.19	.07	0.63	0.23	**.006**	**.04**
Meta-trust	^{x} **4.47**^{a}	0.17	^{x} **4.56**^{a}	0.17	^{x} **3.75**^{b}	0.17	.06	0.31	0.21	.140	.01
Maintenance	^{x} **2.98**^{a}	0.21	^{x} **3.20**^{a}	0.21	^{x} **4.44**^{b}	0.21	.13	-0.84	0.25	**.001**	**.05**
Liking	^{x} **4.91**^{a}	0.21	^{x} **4.80**^{a}	0.21	^{x} **3.46**^{b}	0.21	.14	0.79	0.25	**.002**	**.05**
	n = 35		*n* = 35		*n* = 35						
					RelComp Costly						
RelComp	^{y} **5.69**^{a}	0.22	^{y} **4.38**^{b}	0.22	^{y} **4.38**^{b}	0.22	.11	1.31	0.27	**< .001**	**.11**
Positive Affect	^{y} **6.09**^{a}	0.25	^{y} **5.56**^{a}	0.25	^{y} **5.33**^{a}	0.25	-	0.64	0.31	**.038**	**.02**
Negative Affect	^{x} **2.27**^{a}	0.28	^{x} **2.69**^{a}	0.29	^{y} **2.76**^{a}	0.28	-	-0.45	0.35	.195	.01
Control	^{x} **5.03**^{a}	0.18	^{x} **4.17**^{b}	0.18	^{y} **4.19**^{b}	0.18	.07	0.85	0.22	**< .001**	**.07**
Belonging	^{x} **4.81**^{a}	0.18	^{y} **5.52**^{b}	0.19	^{y} **5.21**^{ab}	0.18	.04	-0.55	0.23	**.016**	**.03**
Trust	^{y} **4.46**^{a}	0.19	^{y} **4.88**^{a}	0.19	^{y} **4.73**^{a}	0.19	-	-0.35	0.24	.141	.01
Meta-trust	^{y} **3.97**^{a}	0.18	^{x} **4.56**^{a}	0.18	^{y} **4.51**^{a}	0.18	-	-0.56	0.22	**.011**	**.03**
Maintenance	^{y} **1.76**^{a}	0.21	^{y} **2.41**^{ab}	0.22	^{y} **2.65**^{b}	0.21	.05	-0.78	0.26	**.004**	**.04**
Liking	^{y} **5.58**^{a}	0.21	^{y} **5.72**^{a}	0.22	^{y} **5.70**^{a}	0.21	-	-0.13	0.26	>.250	-
	n = 33		*n* = 32		*n* = 33						

Note: Superscripts *a* and *b* identify simple mean comparisons between conditions of RelComp. Superscripts *x* and *y* identify simple mean comparisons between conditions of Benefit. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$.

Post-hoc tests for the two-way interaction (Table 15) showed that, in the $\text{Beneficial}_{\text{RelComp}}$ condition, Positive Affect, Belonging and Trust were significantly higher, whereas Negative Affect was significantly lower, in the Complementary condition, but only when compared with the Non-complementary AR condition. In the $\text{Costly}_{\text{RelComp}}$ condition, Positive Affect, Negative Affect, and Trust did not differ significantly between conditions of RelComp; and Belonging was lower in the Complementary condition when compared with the Non-

complementary CS condition, but not when compared with the Non-complementary AR condition.

Post-hoc tests for the main effects (Table 14) showed that Control was higher in the Complementary condition than in each Non-complementary condition, but that Maintenance was only significantly lower in the Complementary condition when compared with the Non-complementary AR condition.

4.7.2.4. Exploratory Analyses

Effects of RelComp on Liking and Meta-trust. The significant main effect of RelComp on Liking and Meta-trust was qualified by an interaction with Benefit (Table 13). According to planned contrasts, Liking was higher in the Complementary condition of the $Beneficial_{RelComp}$ condition, whereas Meta-trust was lower in the Complementary condition of the $Costly_{RelComp}$ condition. On the other hand, post-hoc tests showed that in the $Beneficial_{RelComp}$ condition Liking and Meta-trust were higher in the complementary condition, but only when compared with the Non-complementary AR condition (Table 15). In the $Costly_{RelComp}$ condition, Liking and Meta-trust did not differ between conditions of RelComp (Table 15).

Differences between conditions of Benefit. The main effect of Benefit on Perceived RelComp was not qualified by a two-way interaction (Table 13). Perceived RelComp was higher in the Complementary/ $Costly_{RelComp}$ condition than in the Complementary/ $Beneficial_{RelComp}$ condition, and higher in the Non-complementary/ $Costly_{RelComp}$ conditions than in the Non-complementary/ $Beneficial_{RelComp}$ conditions (Tables 14 and 15).

As in Study 2, the effects of Benefit were explored by comparing the Complementary/ $Beneficial_{RelComp}$ condition with the Complementary/ $Costly_{RelComp}$ condition, and the Non-complementary/ $Beneficial_{RelComp}$ condition with the Non-complementary/ $Costly_{RelComp}$ condition on the dependent measures (see post-hoc tests in Table 15). A theory of Benefit would predict higher ratings of Positive Affect, Control, Belonging, Trust, Meta-trust, and Liking, and lower ratings of Negative Affect and Maintenance, in the conditions that were beneficial to the initiator (i.e., Complementary/ $Beneficial_{RelComp}$ and Non-complementary $Costly_{RelComp}$ condition) than in the conditions that were costly to the initiator (i.e., Complementary/ $Costly_{RelComp}$ and Non-complementary/ $Beneficial_{RelComp}$). These hypotheses would be supported by an interaction between RelComp and Benefit.

Significant two-way interactions were observed on Positive Affect, Negative Affect, Belonging, Trust, Meta-trust and Liking (Table 13). Consistently with a theory of Benefit, in the Non-complementary CS condition and in the Non-complementary AR condition, the dependent variables—except Meta-trust and Negative Affect in the Non-complementary CS condition—were rated higher in the $\text{Costly}_{\text{RelComp}}$ condition than in the $\text{Beneficial}_{\text{RelComp}}$ condition (Table 15). These differences were more pronounced in the Non-complementary AR condition than in the Non-complementary CS condition on Positive Affect, Belonging, Trust, and Liking. Additionally, Meta-trust was higher in the Complementary/ $\text{Beneficial}_{\text{RelComp}}$ condition than in the Complementary/ $\text{Costly}_{\text{RelComp}}$ condition (Table 15).

On the other hand, opposite to a theory of Benefit, differences between the Complementary/ $\text{Beneficial}_{\text{RelComp}}$ condition and the Complementary/ $\text{Costly}_{\text{RelComp}}$ condition on Negative Affect and Belonging were not significant (Table 15). Furthermore, Positive Affect, Trust, and Liking were actually higher in the Complementary/ $\text{Costly}_{\text{RelComp}}$ condition than in the Complementary/ $\text{Beneficial}_{\text{RelComp}}$ condition (Table 15).

Finally, the two-way interaction was not significant on Control, and Maintenance (Table 13). Main effects of Benefit showed that Control was higher, and Maintenance was lower, in the $\text{Costly}_{\text{RelComp}}$ condition than in the $\text{Beneficial}_{\text{RelComp}}$ condition.

Differences between Non-complementary conditions. As in Study 2, the effect of the Non-complementary conditions on the dependent variables varied according to the RM of the Non-complementary response, but only in the $\text{Beneficial}_{\text{RelComp}}$ condition. All dependent variables, but not the manipulation check, differed between the Non-complementary CS condition and the Non-complementary AR condition (Table 15). Positive Affect, Control, Belonging, Trust, Meta-Trust and Liking were higher, and Negative Affect and Maintenance were lower in the Non-complementary CS condition.

4.7.3 Discussion

In Study 2, the manipulation of RelComp in the MP scenario was not effective. The results on the manipulation check showed that the Complementary and Non-complementary conditions were perceived as equally complementary in the MP scenario. Hence, Study 3 employed a modified version of the MP scenario to rule out the effects of Benefit from the effects of RelComp on affect and need fulfillment. As expected, the new version of the MP scenario successfully manipulated RelComp. Perceived RelComp was higher in the

Complementary condition than in each Non-complementary condition, as shown by results on the manipulation check.

Consistently with the RelComp hypothesis, it was predicted that Positive Affect, Control, Belonging and Trust would be higher, and that Negative Affect and Maintenance would be lower, in complementary interactions than in non-complementary interactions; and that these effects would be robust regardless of whether RelComp was beneficial (in the $\text{Beneficial}_{\text{RelComp}}$ condition) or costly (in the $\text{Costly}_{\text{RelComp}}$ condition) to the initiator, relative to Non-complementarity.

A theory of Benefit, on the other hand, would be supported by effects on the dependent variables in same direction as those predicted by a theory of RelComp, but only when complementarity was more beneficial to the initiator than non-complementarity (i.e., in the $\text{Beneficial}_{\text{RelComp}}$ condition). On the other hand, when complementarity was more costly than non-complementarity (in the $\text{Costly}_{\text{RelComp}}$ condition), a theory of Benefit would predict effects in the opposite direction: lower Positive Affect, Control, Belonging and Trust, and higher Negative Affect and Maintenance, in the Complementary condition than in the Non-complementary condition.

The RelComp hypothesis was fully supported by planned contrasts for Positive Affect, Control, and Maintenance, and partially supported for Negative Affect, Belonging, and Trust. Positive Affect and Control were higher, and Maintenance was lower, in the Complementary condition than in the Non-complementary condition, both when RelComp was beneficial (in the $\text{Beneficial}_{\text{RelComp}}$ condition) and costly ($\text{Costly}_{\text{RelComp}}$ condition) to the initiator. The lack of statistically significant interactions showed that Control and Maintenance were not affected by Benefit. However, the two-way interaction on Positive Affect revealed that the effects of RelComp were stronger when it was beneficial rather than costly. In other words, when RelComp and Benefit were manipulated in competing directions, the effects of RelComp on Positive Affect were weakened but not cancelled by Benefit.

On the other hand, Negative Affect was lower, and Belonging and Trust were higher in the Complementary condition than in the Non-complementary condition, but only when RelComp was beneficial to the initiator (in the $\text{Beneficial}_{\text{RelComp}}$ condition). When RelComp was costly (in the $\text{Costly}_{\text{RelComp}}$ condition), there were no differences on Trust and on Negative Affect between the Complementary condition and the Non-complementary

condition. The same pattern of results was observed on Liking and Meta-trust. Unexpectedly, Belonging was higher in the Non-complementary condition than in the Complementary condition. Put differently, Benefit canceled the effects of RelComp on Negative Affect, Trust, Meta-trust and Liking, and overrode the effects of RelComp on Belonging.

In sum, in the Beneficial$_{RelComp}$ condition, when the effects of RelComp and Benefit were mutually reinforcing, both theories were supported. On the other hand, in the Costly$_{RelComp}$ condition, when the effects of RelComp and Benefit were mutually competing, the RelComp hypothesis was supported for Positive Affect, Control and Maintenance, the Benefit hypothesis was supported for Belonging, and none of the two hypotheses were supported for Negative Affect and Trust.

Noteworthy, when the Non-complementary conditions were analyzed separately in the Beneficial$_{RelComp}$ condition, affect and need fulfillment were only improved when the Complementary condition was compared with the Non-complementary AR condition. Unlike the results in Study 2, the lack of differences from the Non-complementary CS condition cannot be explained by the manipulation check. A possible explanation for these results is that the CS Non-complementary response in the Beneficial$_{RelComp}$ scenario (*Jack (not noticing the bill): - Oh, I can't thank you enough buddy! It's so annoying to do the dishes by hand! Hey, why don't you come over for a beer sometime?*) was ambiguous about whether the respondent intended to pay for the job. Such response could have been perceived as a combination of CS and MP, that is, as a friendly invitation which would be followed by payment. An alternative operationalization of the CS response to rule out such explanation would have to be more explicit about the lack of intention to pay for the job.

As in Study 2, in addition to effects of RelComp, differences between conditions of Benefit when RelComp was constant were also explored, by comparing the beneficial Complementary condition (in the Beneficial$_{RelComp}$ condition) with the costly Complementary condition (in the Costly$_{RelComp}$ condition), and the beneficial Non-complementary conditions (in the Costly$_{RelComp}$ condition) with the costly Non-complementary conditions (in the Beneficial$_{RelComp}$ condition). The Benefit hypothesis was supported by comparisons among Non-complementary conditions. Need fulfillment and Affect were improved with benefits when responses by the partner were non-complementary. However, the Benefit hypothesis was falsified by comparisons among Complementary conditions. When responses by the partner were complementary, benefits did not make a difference on Negative Affect, Control,

and Belonging; and, crucially, Positive Affect and Trust were actually higher, when the complementary responses were costly. Additionally, as in Study 2, the previous effects were theoretically consistent with the manipulation check. The non-complementary conditions were perceived are more complementary when they were beneficial to the initiator (i.e., in the $Costly_{RelComp}$ condition), whereas the complementary conditions were perceived as more complementary when they were costly to the initiator (i.e., in the $Costly_{RelComp}$ condition). Therefore, it can be said that affective states and need fulfillment were improved in the interactions that were perceived as more complementary. Thus, differences between conditions of Benefit when RelComp was constant can be more easily explained with a theory of RelComp than with a theory of Benefit, especially when Perceived RelComp is taken into account.

In the discussion of Study 2, I raised the hypothesis that tangible benefits or perceived intentions by the partner to benefit the initiator are aspects of perceived RelComp. In the current study, however, the fact that the costly Complementary condition was perceived as more complementary than the beneficial Complementary condition casts doubt on this possibility.

Altogether, the results discussed above suggest that the effects of RelComp on affect and need fulfillment, when benefits are accounted for, are less robust in MP interactions than in interactions based in other RMs, as shown in Study 2. Apparently, benefits do matter for affect and need fulfillment in MP interactions, but only when interactions are non-complementary. When MP interactions are complementary, however, benefits and costs seem to play a trivial role.

The goal of Studies 2 and 3 was to show that the effects of RelComp that were observed in Study 1 were not caused by the fact that the Complementary interactions were manipulated as more beneficial than the Non-complementary ones. This was attempted by testing the experimental hypotheses that that Positive Affect, Control, Belonging and Trust would be higher, whereas Negative Affect would be lower, in the Complementary condition than in the Non-complementary conditions, both when complementarity was more costly and more beneficial to the participant than non-complementarity. However, this is a conservative hypothesis that is based on the oversimplified assumption that RelComp is a predictor strong enough to override the effects of Benefit. The effects discussed so far suggest that such assumption is true for some dependent variables but not for others. On the other hand,

RelComp may still be associated to affective states and need fulfillment without such an assumption being true. Even if Benefit has an effect on affect and need fulfillment in MP interactions, this does not invalidate that RelComp has a predictive role which is distinct from the role of Benefit. In fact, some results suggest that the two effects are independent even though the experimental hypotheses were not fully supported. First, in the $Costly_{RelComp}$ condition, the RelComp hypothesis was supported for three dependent variables, whereas the Benefit hypothesis was supported for only one. Second, when the beneficial Complementary condition ($Beneficial_{RelComp}$ condition) was compared with the costly Complementary condition ($Costly_{RelComp}$ condition), benefits did not make a difference on the dependent variables, suggesting that RelComp is sufficient condition for need fulfillment and positive affective experiences.

Finally, the results in the $Costly_{RelComp}$ condition suggest that Belonging, Trust and Meta-Trust are more sensitive to benefits than Control. Possibly, it is not benefits *per se* that have an influence on the three variables, but rather how the participants perceived the respondent's intentions towards themselves, and how they perceived themselves to be evaluated by the respondent.

First, Control, like Maintenance, is conceptually agnostic about the content of respondent's intentions to benefit oneself, as long as his or her actions are predictable enough to ensure ease of coordination and success in obtaining the desired results from the interaction. In fact, there are plenty of situations where participants are able to control the course of their interactions and achieve coordination with relative ease, by anticipating non-complementary actions and selfish intentions by the partner, and by strategically planning their own actions accordingly. On the other hand, Trust involves beliefs about the benevolent intentions of the partner (Holmes & Rempel, 1989; Kramer & Carnevale, 2001; Rousseau, et al., 1998). Therefore, trust grows as relational partners sacrifice their own interests and accommodate to the partner's needs (e.g., Shallcross & Simpson, 2012; Wieselquist, et al., 1999). Hence, it is not surprising that, in the $Costly_{RelComp}$ condition, Trust in the respondent was high when the respondent's non-complementary actions were beneficial to the initiator. As in Study 1, Liking followed the same pattern as Trust, which suggests that Liking may be based on beliefs about the partner's intentions.

Notice, however, that if benefiting the partner by accommodating to his needs was the only way to increase interpersonal trust, then, in the $Costly_{RelComp}$ condition, Trust should

have been lower in Complementarity condition than in the Non-complementarity condition. The fact that there were no differences between conditions of RelComp in the $Costly_{RelComp}$ condition implies that accommodating to the trustor's needs is not the only, nor the most important way to signal trustworthiness. Instead, showing relational reliability, by performing the complementary action is, as I proposed, an alternative way to enhance trustworthiness. Hence, Benefits and RelComp are each sufficient conditions for the development of interpersonal trust. In other words, in order to earn the partner's trust one must either apply the same relational standards as the partner, or show concern with the partner's welfare by offering him some kind of benefit.

Second, Control, like Maintenance, is also agnostic about how others evaluate oneself, as long as one is aware of such evaluations in order to enable smooth coordination and efficacy during the interaction. On the contrary, Belonging is, in part, about feeling valued, needed and accepted by the other (Hagerty & Patusky, 1995). Therefore, one possible explanation for the fact that Belonging was higher in the Non-complementary conditions than in the Complementary condition of the $Costly_{RelComp}$ scenario is that responses that offered an unexpected benefit to the initiator, were interpreted by participants as a stronger indicator of the respondent's positive evaluation of the initiator than complementary responses.

Trust involves the willingness to make oneself vulnerable to exploitation by the other person based upon expectations of reciprocity (Rosseau, et al., 1998). Along these lines, it is possible that participants in the $Costly_{RelComp}$ condition interpreted Non-complementary responses that were beneficial to the initiator, but costly to the respondent, as signs of the respondent's willingness to make himself vulnerable to exploitation, by engaging in trust behavior towards the initiator (Dunning, et al., 2014). On the other hand, the Complementary response did not allow for vulnerability attributions because it was beneficial to the respondent and costly to the initiator. Such possibility explains why Meta-trust, in the $Costly_{RelComp}$ condition, was higher when responses were Non-complementary.

4.8. Study 4a

Studies 1 to 3 showed how one's affective states and need fulfillment are affected when the partner either fails or succeeds to complement a previous action by oneself. It could be, however, that the results observed were caused by whether the partner acted according to one's own wants, rather than by the experience of jointly fulfilling (or not) a relational

pattern. Studies 4a and 4b were designed to rule out this explanation by investigating how one's affective states and needs fulfillment are affected when one either fails or succeeds to complement a previous action by the partner. Thus, whereas in studies 1 to 3 participants were asked to take the perspective of the initiator and indicated how they felt about the complementary or non-complementary response of the partner, in studies 4a and 4b they were asked to take the perspective of the respondent and indicated how they felt about their own complementary or non-complementary response to the partner's action. I predicted that affect and needs fulfillment would differ between complementary and non-complementary conditions in the same direction as in studies 1 to 3. These effects were tested with AR and EM interactions, in Study 4a, and with CS and MP interactions, in Study 4b.

Notice that, since performing a complementary action is conceptualized as a sign of trustworthiness, in the current paradigm, RelComp should affect the perceived trustworthiness of the character who either performs the complementary or non-complementary action—i.e., the respondent—but not necessarily the perceived trustworthiness of the character whose actions do not vary in terms of complementarity—i.e., the initiator. Therefore, in studies 1 to 3, when participants took the perspective of the initiator, I predicted effects of RelComp on Trust (i.e., partner's trustworthiness), but not necessarily on Meta-trust (i.e., perceived partner's trust in oneself). In studies 4a and 4b, however, since participants took the perspective of the respondent, I predicted effects of RelComp on Meta-trust, but not necessarily on Trust. Thus, while in the previous studies I made predictions for Trust and treated Meta-trust as exploratory, in the current studies I made predictions for Meta-trust and treated Trust as exploratory.

Additionally, performing a complementary action is not only a sign communicating that one accepts and values the other, but also a condition for being socially accepted and valued by others. Hence, in studies 1 to 3, since participants took the perspective of the initiator, the scale of Belonging measured how much the respondent's action made them feel accepted and valued. However, in the studies 4a and 4b, since participants took the perspective of the respondent, the scale of Belonging measured how much participants' own complementary or non-complementary action made them anticipate feeling valued and accepted by the partner.

As in the previous studies, I also explored the effect of RelComp on the respondent's Liking of the initiator during the interaction.

4.8.1 Causal Attributions to Non-complementary Actions

I anticipated that asking participants to take the perspective of someone who fails to perform the complementary action might cause them to experience psychological reactance (e.g., Brehm, 1966), which, in turn, might affect the quality of their answers. Reactance is the motivation to reestablish threatened or eliminated freedom (Brehm, 1966, p. 15), often by adopting a position opposite to the one advocated in the threatening message (Worchel & Brehm, 1970). Perceiving that their freedom to identify with their most preferred response (i.e., the complementary response, since it is the most rewarding) was threatened, could make participants interpret the non-complementary responses as implausible and, therefore, resist taking such perspective. To avoid this problem, participants in the non-complementary conditions were given plausible reasons for performing the non-complementary action.

One of the causal dimensions for action proposed by attribution theory (Weiner, 2010) describes whether causes are controllable (e.g., effort) or uncontrollable (e.g., aptitude, luck) by the person. Research, shows that people are judged as more responsible when their failure or poor performance is attributed to controllable (e.g., lack of effort), than uncontrollable (e.g., lack of ability) causes (Struthers, Miller, Boudens & Briggs, 2001; Struthers, Weiner & Allred, 1998). Presumably because they are held more responsible, others tend to feel more anger and less sympathy towards them (Struthers, et al., 2001; Struthers, et al., 1998). Therefore, when breaking a social contract (e.g., arriving late at an appointment), people tend excuse themselves with uncontrollable causes (Fraser, 2000; Weiner, Figueroa-Muñoz & Kakihara, 1991). People who present uncontrollable excuses (e.g., teacher interference) not only mitigate the partner's anger, but are also perceived as more dependable, responsible and considerate, than those who do not present excuses, or present controllable excuses (e.g., forgetting; Weiner, Amirkhan, Folkes, & Verette, 1987).

In other to control perceived responsibility, two causes for non-complementarity were manipulated, in addition to the complementary response. In one condition—Non-complementary Uncontrollable—the cause was uncontrollable, i.e., bad luck. In the other condition—Non-complementary Controllable—the cause was controllable, i.e., lack of effort or negligence. I predicted that Positive Affect, Control, Belonging, and Meta-trust would be higher, and Negative Affect and Maintenance would be lower, in the Complementary condition than in the two Non-complementary conditions together.

Additionally, I explored the extent to which affect and need fulfillment were affected by the controllability of the non-complementary action. First, since controllability is presumably associated to responsibility, people should evaluate failure to complement more favorably when it is attributed to uncontrollable than to controllable causes. If this is the case, then one should expect (i) Positive Affect, Control, Belonging, and Meta-trust to be higher, and Negative Affect and Maintenance to be lower, in the Non-complementary Uncontrollable condition than in the Non-complementary Controllable condition. Second, if making an effort is sufficient condition, then (ii) differences in the dependent variables should be trivial and considerably smaller between the Complementary condition and the Non-complementary Uncontrollable condition (i.e., when participants made an effort but failed due to cause beyond their control) than between the Complementary condition and the Non-complementary Controllable condition (i.e., when participants did not make an effort). Finally, if successfully performing the complementary action is necessary condition, then (iii) Positive Affect, Control, Belonging, and Meta-trust should be higher, and Negative Affect and Maintenance should be lower, in the Complementary condition when compared with each Non-complementary condition separately. This is a more conservative version of the main hypothesis.

4.8.2 Action Complementarity and Cognitive Complementarity

Although this manipulation was created for technical reasons, its effects have important theoretical implications for understanding the phenomenology of RelComp. I established in Chapter 2 that RelComp requires the fitting of participants' overt behavior and psychological states, to the extent that such psychological states are represented as part of the relational pattern to be fulfilled. I also argued that different degrees of RelComp should be experienced depending on whether: both actions and psychological states are congruent between participants; psychological states are congruent but actions are not; actions are congruent but psychological states are not; and neither actions nor psychological states are congruent. In studies 4a and 4b, psychological states can be inferred from the manipulation. Specifically, attributing non-complementarity to controllable causes, such as lack of effort or negligence implies that the respondent was not strongly committed to performing his or her part of the relational pattern. Hence, in the Non-complementary Controllable condition neither actions nor psychological states are congruent with those of the partner; it is thus, an operationalization of the lowest degree of RelComp. On the other hand, attributing non-

complementarity to uncontrollable causes, such as bad luck, protects the authenticity of the respondent's intention and commitment to complement, despite his actual failure to do so. Thus, the Non-complementary Uncontrollable condition is a manipulation of congruent psychological states but incongruent actions, corresponding to an intermediate level of RelComp. Finally, in the Complementary condition both actions and psychological states are congruent, representing the highest level of RelComp. From here on I will refer to both types of congruence as *action complementarity* and *cognitive complementarity*.

If the theoretical distinction between degrees of RelComp has some parallel with the psychological experience of RelComp, then Perceived RelComp, Positive Affect, Belonging, Control and Meta-trust should increase, whereas Negative Affect, and Maintenance should decrease, linearly from the Non-complementary Controllable condition (the lowest degree of RelComp), to the Non-complementary Uncontrollable condition (the intermediate degree of RelComp), to the Complementary condition (the highest degree of RelComp). Moreover, differences between conditions should inform whether action complementarity and/or cognitive complementarity explain variance on each dependent variable. First, the effect of cognitive complementarity, when action complementarity is constant (and absent), can be determined by differences between the Non-complementary Uncontrollable condition and the Non-complementary Controllable condition. If cognitive complementarity alone is relevant for affect and need fulfillment, then one should expect Positive Affect, Control, Belonging, and Meta-trust to be higher, and Negative Affect and Maintenance to be lower, in the Non-complementary Uncontrollable condition than in the Non-complementary Controllable condition (cf. i, previous section). Second, the effect of action complementarity, when cognitive complementarity is constant (and present), can be determined by differences between the Complementary condition and the Non-complementary Uncontrollable condition. If action complementarity is necessary condition, then Positive Affect, Control, Belonging, and Meta-trust should be higher, and Negative Affect and Maintenance should be lower, in the Complementary condition than in the Non-complementary Uncontrollable condition (cf. iii, previous section). On the other hand, if action complementarity is unnecessary and cognitive complementarity is sufficient condition, then differences between the Complementary condition and the Non-complementary Uncontrollable condition should be trivial and smaller than differences between the Complementary condition and the Non-complementary Controllable condition (cf. ii, previous section). Third, the effect of both action *and* cognitive complementarity on each dependent variable can be determined by

differences between the Complementary condition and the Non-complementary Controllable condition. Since the two conditions correspond to the highest and lowest degree of RelComp, respectively, Positive Affect, Control, Belonging, and Meta-trust should be higher, and Negative Affect and Maintenance should be lower, in the Complementary condition than in the Non-complementary Controllable condition (cf. iii, previous section).

Finally, since the manipulation check included two subscales assessing complementarity of the characters' action and complementarity of the characters' cognitive perceptions of the relationship, I also explored whether participants evaluated the action and cognitive aspects of the manipulation differently. If they did, then, the cognitive complementarity subscale should be rated equally higher in the Complementary condition and in the Non-complementary Uncontrollable condition when compared with the Non-complementary Controllable condition, meaning that participants in the two former conditions felt that their partners perceived the relationship more similarly to them than participants in the latter condition. On the other hand, the action complementarity subscale should be rated higher in the Complementary condition than in each Non-complementary condition, meaning that participants in the former condition felt that their actions fitted the actions of the partner better than participants in the other two conditions.

4.8.3 Methods

4.8.3.1 Participants

A 15-minute online questionnaire was initiated by 335 participants and completed, by 109 Portuguese nationals, 57.8% female, with ages between 16 and 54 years-old (M^{age} = 25.89, *SD* = 7.45). Thirty-eight percent had a bachelor degree, 28.4% had an incomplete bachelor degree, 21.1% had a high-school diploma, and 11.9% had a master's degree.

4.8.3.2 Design

This was a 2 (AR vs. EM) x 3 (Complementary vs. Non-complementary Uncontrollable vs. Non-complementary Controllable) mixed factorial design. Each participant was randomly assigned to two of six scenarios describing an interaction between two characters: one initiator and one respondent. The six scenarios resulted from the combination of two variables: the RM implemented by the initiator (AR vs. EM), and the reply by the respondent. The reply was either complementary, non-complementary due to causes not controllable by

the respondent, or non-complementary due to causes controllable by the respondent (RelComp: Complementary vs. Non-comp$_{Uncontrollable}$ vs. Non-comp$_{Controllable}$). Similarly to the previous studies, RelComp was manipulated between subjects and RM was manipulated within-subjects. Hence, each participant was exposed to one AR scenario and one EM scenario, in randomized order while the levels of RelComp were held constant within participants.

4.8.3.3 Materials and Procedure

Portuguese speaking participants were recruited by one student of the Master in Social and Organizational Psychology at a public university in Lisbon who had to run an experiment as requirement for a class on research methods. Participants were recruited by convenience via social networks and e-mail, and were offered participation in a lottery awarding three 100€ vouchers.

The online questionnaire was built in Qualtrics and accessed through a link distributed via e-mail and social media. The procedures for informing participants about purpose of the study, the voluntary nature of their participation, confidentiality and anonymity of their answers, the contact of the main investigator for further information, as well as for debriefing the participants and notifying the winners to collect the prize were the same as in Study 1. The manipulations and measures were also administered as in the previous studies, with the exception that after reading each scenario and before responding to the dependent measures, participants were asked to take the perspective of the respondent, instead of the initiator. The dependent variables and manipulation check were the same and measured in the same order as in the previous studies.

Scenarios. Two types of scenarios were presented to participants describing interactions about the writing of a report, and the distribution of food. The scenarios had following structure: (a) a description of the context of the interaction, (b) the initiation by the first character, (c) expressed commitment to comply by the second characters, and (d) the actual response by the second character (see English description of the scenarios in Appendix M).

The description of the interaction context introduced the two characters, their relationship, the aspect of the relationship that required coordination between the two, and the RM (AR vs. EM) to be implemented to achieve coordination. RMs were specified according

to the experimental condition by describing how each aspect was going to be coordinated among the characters. On AR interactions the respondent was assigned the task of writing a report to her boss; whereas on EM interactions, the respondent had to return some yogurts he borrowed from his roommate.

The interaction was initiated by the first character making a request to the second (e.g., "*– Mrs. Sara, I'd like you to write this report and send it to me tonight, so that I can revise it and send it in the morning*"). On all conditions the respondent replied by expressing his or her commitment to cooperate with the request (e.g., "*Mrs. Sara feels perfectly capable of writing it and she is free tonight. Hence, she took the task: - Yes, sir. I'll do it!*").

Next, there was a description of the respondent's actual action which was the manipulation of RelComp. The actual action by the respondent was described as being performed in the absence of the initiator. In the Complementary condition the respondent did what he/she committed him/herself to do (e.g., *"That night, Mrs. Sara finished the report and sent it by e-mail to Mr. Manuel*"). In the Non-comp$_{Uncontrollable}$ condition the respondent failed to do what he/she committed him/herself for reasons beyond his/her control (e.g., "*That night, when the report was almost complete, some virus crashed Mrs. Sara's computer, preventing her from finishing. After several unsuccessful trials she gave up and decided to send an e-mail to Mr. Manuel explaining the situation*"). In the Non-comp$_{Controllable}$ condition the respondent failed for reasons within his/her control (e.g., "*That night, when Sara was having dinner, she started watching one of her favorite movies on TV. Sara fell asleep on the couch. In the morning she noticed she hadn't done the report"*).

Measures. The items were similar to the Portuguese items used in Study 1 to measure Liking (M = 5.50, SD = 1.17, Min. = 1, Max. = 7), Positive Affect (M = 3.54, SD = 2.10, Min. = 1, Max. = 7), Negative Affect (M = 4.45, SD = 2.07, Min. = 1, Max. = 7), Maintenance ($\alpha_{\text{first scenario}}$ = .84, $\alpha_{\text{second scenario}}$ = .86, M = 3.31, SD = 1.36, Min. = 1.00, Max. = 6.50), Control ($\alpha_{\text{first scenario}}$ = .87, $\alpha_{\text{second scenario}}$ = .87, M = 4.17, SD = 1.26, Min. = 1.33, Max. = 7.00), Trust ($\alpha_{\text{first scenario}}$ = .77, $\alpha_{\text{second scenario}}$ = .83, M = 4.67, SD = 0.94, Min. = 1.60, Max. = 7.00), Meta-trust ($\alpha_{\text{first scenario}}$ = .91, $\alpha_{\text{second scenario}}$ = .94, M = 4.59, SD = 1.39, Min. = 1.20, Max. = 7.00), Belonging ($\alpha_{\text{first scenario}}$ = .87, $\alpha_{\text{second scenario}}$ = .91, M = 4.66, SD = 1.22, Min. = 1.20, Max. = 7.00), and Perceived RelComp ($\alpha_{\text{first scenario}}$ = .92, $\alpha_{\text{second scenario}}$ = .91, M = 4.17, SD = 1.16, Min. = 1.62, Max. = 6.92), except they were phrased differently, to be coherent with the respondent's perspective, instead of the initiator's. For instance, instead of reading "*Mr.*

Manuel's action put me (Mrs. Sara) in a positive mood" they read "*My action (Mrs. Sara's) towards Mr. Manuel put me in a positive mood*".

In addition, the measures of Maintenance, Control, Belonging, Trust and Meta-trust, used in the previous studies made reference to past interactions and previous actions by the other towards oneself. In this experiment, however, the Complementary or Non-complementary response took place in the absence of the other, and hence, would only affect their interaction, and consequent need fulfillment in the future, when the other became aware of it. For this reason the measures of Control, Belonging, Trust, Meta-trust and Maintenance were also rephrased in order to refer to the characters' next interaction. More specifically, the items of Control were changed to make reference to one's perceived control over future actions by the other (e.g., *"I (Mrs. Sara) am easily controlling the outcomes of my next interaction with Mr. Manuel"*); Belonging, Trust and Meta-trust items were modified to be contingent on the other's future perception of one's action (e.g., *I (Mrs. Sara) I will continue to feel valued as a person by Mr. Manuel*; *Mr. Manuel will continue to trust me completely*); and the items of Maintenance were rephrased to refer to the next time the characters interacted (e.g., *Mr. Manuel and I (Mrs. Sara) will have a difficult time communicating*).

A mean score between the items of each scale was computed and treated as dependent variable as in the previous studies.

4.8.4 Results

Correlations between all measures are shown in Table 16. Perceived RelComp, Positive Affect, Negative Affect Control, Belonging, Meta-trust and Maintenance correlated moderately ($r < |.50|$) to strongly ($r \geq |.50|$) with one another.

Table 16 – Pearson correlations between all measures

		1	2	3	4	5	6	7	8	9
RelComp	1	1.00	**.65****	**-.67****	**.76****	**.68****	**.35****	**.74****	**-.73****	**.26****
Pos. Affect	2	.67**	1.00	**-.86****	**.67****	**.43****	**.12**	**.48****	**-.61****	**.14**
Neg. Affect	3	-.59**	-.81**	1.00	**-.66****	**-.43****	**-.12****	**-.49****	**.66****	**-.11**
Control	4	.83**	.74**	-.63**	1.00	**.71****	**.42****	**.73****	**-.82****	**.34****
Belonging	5	.71**	.46**	-.42**	.73**	1.00	**.61****	**.86****	**-.72****	**.49****
Trust	6	.36**	.06	-.03	.31**	.61**	1.00	**.59****	**-.43****	**.56****
Meta-trust	7	.71**	.53**	-.47**	.72**	.82**	.48**	1.00	**-.73****	**.43****
Maintenance	8	-.67**	-.55**	.58**	-.78**	-.76**	-.46**	-.72**	1.00	**-.35****
Liking	9	.15	.03	.05	.17	.43**	.54**	.37**	-.37**	1.00

* $p < .05$; ** $p < .01$. Correlations for the first scenario of each participant are reported in the upper part of the table ($n = 147$). Correlations for the second scenario of each participant are reported in the lower part of the table ($n = 109$).

One case with Mahalanobis distance larger than critical chi-square value (Tabachnick & Fidell, 2014) for 9 degrees of freedom, χ^2 (9) = 27.88, $p < .001$, was considered a multivariate outlier and removed from the analyses.

I conducted a 2 (AR vs. EM) x 3 (Complementary vs. Non-complementary Uncontrollable vs. Non-complementary Controllable) Multivariate Repeated Measures GLM on all dependent variables and manipulation check using IBM SPSS 23. Since the homogeneity of variance-covariance matrices could not be ascertained given the different sample sizes across groups, Pillai's criterion was used to evaluate multivariate significance (Tabachnick & Fidell, 2014).

As in Study 3, the hypotheses were tested by comparing each complementary condition with the two non-complementary conditions together with planned contrasts (1, -0.5, -0.5) on each dependent variable, at each level of RM. The planned contrasts were defined with the /LMATRIX and /MMATRIX subcommands. Furthermore, the role of action and cognitive complementarity, and the role of RMs were explored with Bonferroni adjusted post-hoc tests comparing between conditions of RelComp and RM, respectively. Significance tests were estimated with a 95% CI.

Table 17 – Univariate tests of main effects and two- and three-way interactions on each manipulation check and dependent variable

	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2
	RelComp				RM				RelComp*RM			
RelComp	2	**44.29**	**<.001**	**.46**	1	**31.35**	**<.001**	**.23**	2	**5.07**	**.008**	**.09**
Positive Affect	2	**80.29**	**<.001**	**.61**	1	**7.84**	**.006**	**.07**	2	0.39	>.250	-
Negative Affect	2	**68.09**	**<.001**	**.56**	1	**6.81**	**.010**	**.06**	2	0.48	>.250	-
Control	2	**48.39**	**<.001**	**.48**	1	**55.94**	**<.001**	**.35**	2	**4.49**	**.014**	**.08**
Belonging	2	**13.95**	**<.001**	**.21**	1	**43.08**	**<.001**	**.29**	2	**8.47**	**<.001**	**.14**
Trust	2	0.50	>.250	-	1	**62.01**	**<.001**	**.37**	2	1.72	.184	.03
Meta-trust	2	**19.72**	**<.001**	**.27**	1	**31.81**	**<.001**	**.23**	2	**10.42**	**<.001**	**.17**
Maintenance	2	**39.76**	**<.001**	**.43**	1	**60.76**	**<.001**	**.37**	2	**9.97**	**<.001**	**.16**
Liking	2	0.32	>.250	-	1	**20.50**	**<.001**	**.16**	2	0.18	>.250	-
Error	105				105				105			

4.8.4.1 Preliminary Analysis

Multivariate tests showed that the effects of RelComp, $F(18, 196) = 7.79$, $p < .001$, $\eta_p^2 = .42$, RM, $F(9, 97) = 10.37$, $p < .001$, $\eta_p^2 = .49$, the two-way interaction, $F(18, 196) = 2.93$, $p < .001$, $\eta_p^2 = .22$, and the planned contrasts, $F(18, 88) = 9.34$, $p < .001$, $\eta_p^2 = .66$, were statistically significant. The Univariate tests of the main effects and two-way interaction on

each dependent variable and manipulation check are presented in Table 17. Estimated marginal means, standard errors, significance tests and effect sizes are displayed in Table 18, for the main effects, and in Table 19 for the two-way interaction.

4.8.4.1 Manipulation Check

The main effect of RelComp on the manipulation check was qualified by a two-way interaction. As expected, in both RMs, Perceived RelComp was higher in the Complementary condition when compared with the Non-complementary conditions either separately or together (Table 19). Interestingly, whereas in the AR scenario the responses were perceived as equally not complementary (< 4) in the Non-comp$_{Uncontrollable}$ condition and in the Non-comp$_{Controllable}$ condition, in the EM scenario responses were perceived as more complementary in the Non-comp$_{Uncontrollable}$ condition than in the Non-comp$_{Controllable}$ condition.

Table 18 - Estimated Marginal Means and Standard Errors for the main effects

	Comp		Non-comp Uncontrollable		Non-comp Controllable		Authority Ranking		Equality Matching	
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
RelComp	**5.14**^{a}	0.14	**4.09**^{b}	0.14	**3.42**^{c}	0.12	**3.98**^{a}	0.08	**4.45**^{b}	0.09
Positive Affect	**5.58**^{a}	0.21	**3.11**^{b}	0.21	**2.14**^{c}	0.18	**3.34**^{a}	0.14	**3.89**^{b}	0.15
Negative Affect	**2.66**^{a}	0.22	**4.50**^{b}	0.21	**5.97**^{c}	0.19	**4.60**^{a}	0.15	**4.15**^{b}	0.14
Control	**5.29**^{a}	0.15	**3.90**^{b}	0.15	**3.41**^{c}	0.13	**3.87**^{a}	0.09	**4.54**^{b}	0.09
Belonging	**5.33**^{a}	0.17	**4.60**^{b}	0.16	**4.18**^{b}	0.14	**4.37**^{a}	0.10	**5.04**^{b}	0.11
Trust	**4.63**^{a}	0.12	**4.78**^{a}	0.12	**4.64**^{a}	0.11	**4.29**^{a}	0.08	**5.09**^{b}	0.09
Meta-trust	**5.47**^{a}	0.19	**4.67**^{b}	0.19	**3.91**^{c}	0.16	**4.38**^{a}	0.11	**4.99**^{b}	0.12
Maintenance	**2.34**^{a}	0.16	**3.33**^{b}	0.15	**4.16**^{c}	0.13	**3.71**^{a}	0.11	**2.83**^{b}	0.10
Liking	**5.44**^{a}	0.17	**5.61**^{a}	0.16	**5.47**^{a}	0.14	**5.22**^{a}	0.12	**5.78**^{b}	0.10
	n = 32		*n* = 33		*n* = 43		*n* = 108		*n* = 108	

Note: Simple mean comparisons between conditions are identified with superscripts *a*, *b* and *c*. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$. See effect sizes in Table 17.

4.8.4.2 Effects of RelComp on the Dependent Variables

I predicted higher ratings on Positive Affect, Control, Belonging and Meta-trust, and lower ratings on Negative Affect and Maintenance in the Complementary condition than in the two Non-complementary conditions together, in both conditions of RM. As hypothesized, planned contrasts showed that participants in the AR and EM scenarios experienced higher Positive Affect, Belonging, Control, Meta-trust, and lower Negative Affect and Maintenance,

in the Complementary conditions when compared with the two Non-complementary responses together.

Table 19 - Estimated marginal means, standard errors, planned contrasts and post-hoc tests, and effect sizes for the two-way interaction.

	Comp		Non-comp Uncontrollable		Non-comp Controllable		Contrast Comp vs. Non-Comp			
	n = 32		*n* = 33		*n* = 43					
	M	*SE*	*M*	*SE*	*M*	*SE*	*Est.*	*SE*	*p*	η_p^2
					Authority Ranking					
RelComp	^{x} **4.88**^{a}	0.15	^{x} **3.71**^{b}	0.14	^{x} **3.36**^{b}	0.13	1.35	0.18	**< .001**	**.36**
Positive Affect	^{x} **5.41**^{a}	0.26	^{x} **2.85**^{b}	0.26	^{x} **1.77**^{c}	0.23	3.10	0.31	**< .001**	**.48**
Negative Affect	^{x} **2.84**^{a}	0.27	^{x} **4.85**^{b}	0.27	^{x} **6.12**^{c}	0.24	-2.64	0.33	**< .001**	**.38**
Control	^{x} **5.10**^{a}	0.17	^{x} **3.38**^{b}	0.17	^{x} **3.12**^{b}	0.15	1.86	0.21	**< .001**	**.44**
Belonging	^{x} **5.18**^{a}	0.18	^{x} **3.96**^{b}	0.18	^{x} **3.96**^{b}	0.16	1.22	0.22	**< .001**	**.23**
Trust	^{x} **4.23**^{a}	0.15	^{x} **4.27**^{a}	0.15	^{x} **4.35**^{a}	0.13	-0.82	0.18	>.250	-
Meta-trust	^{x} **5.44**^{a}	0.21	^{x} **4.02**^{b}	0.21	^{x} **3.67**^{b}	0.18	1.59	0.25	**< .001**	**.28**
Maintenance	^{x} **2.55**^{a}	0.19	^{x} **4.13**^{b}	0.19	^{x} **4.47**^{b}	0.17	-1.75	0.23	**< .001**	**.36**
Liking	^{x} **5.19**^{a}	0.22	^{x} **5.27**^{a}	0.21	^{x} **5.21**^{a}	0.19	-0.54	0.26	.>.250	-
					Equality Matching					
RelComp	^{y} **5.40**^{a}	0.17	^{y} **4.47**^{b}	0.17	^{x} **3.49**^{c}	0.15	1.42	0.20	**< .001**	**.32**
Positive Affect	^{x} **5.75**^{a}	0.28	^{x} **3.36**^{b}	0.28	^{y} **2.51**^{b}	0.24	2.81	0.34	**< .001**	**.40**
Negative Affect	^{x} **2.47**^{a}	0.26	^{y} **4.15**^{b}	0.26	^{x} **5.81**^{c}	0.23	-2.52	0.31	**< .001**	**.38**
Control	^{y} **5.48**^{a}	0.17	^{y} **4.42**^{b}	0.16	^{y} **3.70**^{c}	0.14	1.42	0.20	**< .001**	**.33**
Belonging	^{x} **5.49**^{a}	0.20	^{y} **5.25**^{a}	0.20	^{y} **4.40**^{b}	0.17	0.66	0.24	**.006**	**.07**
Trust	^{y} **5.04**^{a}	0.16	^{y} **5.29**^{a}	0.15	^{y} **4.93**^{a}	0.14	-0.71	0.19	>.250	-
Meta-trust	^{x} **5.49**^{a}	0.22	^{y} **5.32**^{a}	0.21	^{y} **4.15**^{b}	0.19	0.76	0.26	**.004**	**.08**
Maintenance	^{y} **2.13**^{a}	0.18	^{y} **2.52**^{a}	0.18	^{y} **3.85**^{b}	0.15	-1.06	0.21	**< .001**	**.19**
Liking	^{y} **5.69**^{a}	0.18	^{y} **5.94**^{a}	0.18	^{y} **5.72**^{a}	0.16	-0.14	0.22	>.250	-

Note: Superscripts *a*, *b* and *c* identify simple mean comparisons between conditions of RelComp. Superscripts *x* and *y* identify simple mean comparisons between conditions of RM. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$.

A more conservative version of the hypotheses would predict higher ratings of Positive Affect, Control, Belonging and Meta-trust, and lower ratings of Negative Affect and Maintenance, in the Complementary conditions when compared with each Non-complementary condition separately with post-hoc tests, at each level of RM. These hypotheses would be supported by main effects of RelComp on the dependent variables showing that the predicted differences were constant across RM scenarios, or by two-way interactions showing that the predicted differences were weakened or enlarged across RM scenarios.

The main effect of RelComp was significant on the dependent variables, with the exception of Trust and Liking, and the two-way interaction was significant on Control, Belonging, Meta-trust and Maintenance. Table 18 shows that Positive Affect and Control were higher, whereas Negative Affect was lower in the Complementary condition than in each Non-complementary condition. These differences were robust across RMs (Table 19), although, but more pronounced in the AR scenario in the case of Control. Regarding the other dependent variables, in the AR scenario, Belonging and Meta-trust were higher, whereas Maintenance was lower, in the Complementary condition than in each Non-complementary condition (Table 19). In the EM scenario, Belonging and Meta-trust were higher, whereas Maintenance was lower, in the Complementary condition when compared with the Non-comp$_{Controllable}$ condition, but not when compared with the Non-comp$_{Uncontrollable}$ condition (Table 19).

Differences between Non-complementary conditions. The main effects of RelComp showed that Positive Affect was higher, and Negative Affect was lower in the Non-comp$_{Uncontrollable}$ condition than in the Non-comp$_{Controllable}$ condition (Table 18). The two-way interactions, on the other hand, showed that Control, Belonging and Meta-Trust were higher, and Maintenance was lower, in the Non-comp$_{Uncontrollable}$ condition than in the Non-comp$_{Controllable}$ condition, but only in the EM scenario (Table 19).

4.8.4.3 Exploratory Analyses

Effects of RelComp on Liking and Trust. The main effect of RelComp and the two-way interaction on two variables was not significant (Table 17).

Differences between RMs. Significant main effects of RM (Table 17) showed that Positive Affect, Trust and Liking were lower, and Negative Affect was higher, in the AR scenario than in the EM scenario. The mains effects of RM on the manipulation check, Control, Belonging, Meta-trust and Maintenance were qualified by an interaction with RelComp. Perceived RelComp was higher in the EM than in the AR scenario, but only among the Complementary condition and the Non-comp$_{Uncontrollable}$ condition. Control was higher, and Maintenance was lower, in the EM than in the AR scenario across all conditions of RelComp, but these differences were larger ($M_{diff} > 1$) in the Non-comp$_{Uncontrollable}$ condition than in the other two conditions. Belonging and Meta-trust were also higher in the EM than in the AR scenario, but only significantly among the two Non-complementary conditions.

Subscales of Perceived RelComp. In order to explore whether participants in different conditions of RelComp differed in their ratings on the two subscales of the manipulation check assessing action complementarity and cognitive complementarity, one mean score of the items of each subscale was computed. A 2 (AR vs. EM) x 3 (Complementary vs. Non-complementary Uncontrollable vs. Non-complementary Controllable) Multivariate Repeated Measures GLM was conducted on all dependent variables and manipulation check subscales. Multivariate tests showed statistically significant main effects of RelComp, $F(20, 194) = 7.16$, $p < .001$, $\eta_p^2 = .43$, and RM, $F(10, 96) = 9.25$, $p = .000$, $\eta_p^2 = .49$, and interaction effect, $F(20, 194) = 2.63$, $p < .001$, $\eta_p^2 = .21$. The results on the dependent variables were the same as in the first GLM. Estimated marginal means were compared Bonferroni adjusted post-hoc tests.

Action complementarity subscale. The main effect of RelComp on the action complementarity subscale, $F(2, 105) = 61.78$, $p < .001$, $\eta_p^2 = .54$, was not qualified by an interaction with RM, $F(2, 105) = 2.12$, $p < .125$. Post-hoc tests with Bonferroni correction, showed that Action complementarity was higher in the Complementary condition, $EMM = 5.41$, $SE = 0.17$, than in the Non-comp$_{Uncontrollable}$ condition, $EMM = 3.89$, $SE = 0.16$, $p < .001$, and in the Non-comp$_{Controllable}$ condition, $EMM = 3.00$, $SE = 0.14$, $p < .001$; and higher in the Non-comp$_{Uncontrollable}$ condition than in the Non-comp$_{Controllable}$ condition, $p < .001$.

Cognitive complementarity subscale. The main effect of RelComp on the cognitive subscale, $F(2, 105) = 12.20$, $p < .001$, $\eta_p^2 = .19$, was qualified by an interaction with RM, $F(2, 105) = 5.48$, $p = .005$, $\eta_p^2 = .09$. In the AR scenario, cognitive complementarity was higher in the Complementary condition, $EMM = 4.52$, $SE = 0.16$, than in the Non-comp$_{Uncontrollable}$ condition, $EMM = 3.83$, $SE = 0.15$, $p = .007$, and in the Non-comp$_{Controllable}$ condition, $EMM = 3.83$, $SE = 0.13$, $p = .004$. There were no differences between Non-complementary conditions ($p = 1$). On the other hand, in the EM scenario, cognitive complementarity was higher in the Complementary condition, $EMM = 5.13$, $SE = 0.18$, $p < .001$, and in the Non-comp$_{Uncontrollable}$ condition, $EMM = 4.82$, $SE = 0.18$, $p = .002$, when compared with the Non-comp$_{Controllable}$ condition, $EMM = 4.01$, $SE = 0.15$. There were no differences between the Complementary condition and the Non-comp$_{Uncontrollable}$ conditions ($p < .250$)

4.9. Study 4b

The goal of Study 4b was to replicate the findings of Study 4a in CS and MP interactions.

4.9.1 Methods

4.9.1.1 Participants

An 15-minute online questionnaire was initiated by 337 participants and completed, by 123 Portuguese speaking participants, 96.8% Portuguese nationals, 69.9% female, with ages between 15 and 73 years-old (M^{age} = 28.16, *SD* = 12.03). Forty-one percent (40.7%) had a bachelor degree, 21.1% had an incomplete bachelor degree, 17.1% had a high-school diploma, and 19.5% had a master's degree.

4.9.1.2 Design

This was a 2 (CS vs. MP) x 3 (Complementary vs. Non-comp$_{Uncontrollable}$ vs. Non-comp$_{Controllable}$) mixed factorial design, with RelComp manipulated between subjects and RM manipulated within-subjects, as in Study 4a.

4.9.1.3 Materials and Procedure

Portuguese speaking participants were recruited by two students of the Master in Social and Organizational Psychology at a public university in Lisbon who had to run an experiment as requirement for a class on research methods. Procedures for recruiting and rewarding participants; for building and disseminating the online questionnaire; for informing participants about the voluntary nature of their participation, confidentiality and anonymity of their answers, the contact of the main investigator for further information, as well as for debriefing the participants and notifying the winners to collect the prize were the same as in Study 4a. The manipulations and measures were also administered as in Study 4a.

Scenarios. The only difference between scenarios on Study 4a and Study 4b were the RMs that were manipulated: CS and MP. In the CS scenario the respondent was asked by her brother to help him paint his apartment; whereas in the MP scenario, the respondent had to leave the rent payment on his mailbox on a certain time of the day for the landlord to collect it (see English description of the scenarios in Appendix N).

Measures. The measures of Liking ($\alpha_{\text{first scenario}}$ = .87, $\alpha_{\text{second scenario}}$ = .87, *M* = 5.77, *SD* = 1.23, Min. = 2, Max. = 7), Positive Affect ($\alpha_{\text{first scenario}}$ = .87, $\alpha_{\text{second scenario}}$ = .87, *M* = 3.32, *SD* = 2.13, Min. = 1, Max. = 7), Negative Affect ($\alpha_{\text{first scenario}}$ = .87, $\alpha_{\text{second scenario}}$ = .87, *M* = 4.54, *SD* = 2.14, Min. = 1, Max. = 7), Maintenance ($\alpha_{\text{first scenario}}$ = .80, $\alpha_{\text{second scenario}}$ = .81, *M* =

3.08, *SD* = 1.29, Min. = 1.00, Max. = 7.00), Control ($\alpha_{\text{first scenario}}$ = .80, $\alpha_{\text{second scenario}}$ = .80, *M* = 4.30, *SD* = 1.20, Min. = 1.17, Max. = 7.00), respondent's Trust ($\alpha_{\text{first scenario}}$ = .74, $\alpha_{\text{second scenario}}$ = .84, *M* = 4.91, *SD* = 1.06, Min. = 2.40, Max. = 7.00), respondent's Meta-trust ($\alpha_{\text{first scenario}}$ = .91, $\alpha_{\text{second scenario}}$ = .94, *M* = 4.83, *SD* = 1.46, Min. = 1.00, Max. = 7.00), Belonging ($\alpha_{\text{first scenario}}$ = .87, $\alpha_{\text{second scenario}}$ = .90, *M* = 5.02, *SD* = 1.29, Min. = 1.00, Max. = 7.00), and Perceived RelComp ($\alpha_{\text{first scenario}}$ = .91, $\alpha_{\text{second scenario}}$ = .92, *M* = 4.17, *SD* = 1.26, Min. = 1.38, Max. = 7.00) were the same as in Study 4a.

4.9.2 Results

Correlations between all measures are shown in Table 20. Perceived RelComp, Positive Affect, Negative Affect, Control, Belonging, Meta-trust and Maintenance correlated moderately ($r < |.50|$) to strongly ($r \geq |.50|$) with one another.

Table 20 – Pearson correlations between all measures

		1	2	3	4	5	6	7	8	9
RelComp	1	1.00	**.68****	**-.66****	**.71****	**.56****	**.25****	**.64****	**-.68****	**.19***
Pos. Affect	2	.64**	1.00	**-.88****	**.62****	**.35****	**.05**	**.34****	**-.49****	**.16**
Neg. Affect	3	-.63**	-.83**	1.00	**-.61****	**-.32****	**-.03**	**-.37****	**.52****	**-.14**
Control	4	.74**	.52**	-.52**	1.00	**.55****	**.25****	**.52****	**-.73****	**.23****
Belonging	5	.64**	.32**	-.38**	.68**	1.00	**.63****	**.82****	**-.68****	**.41****
Trust	6	.37**	.10	-.07	.39**	.67**	1.00	**.61****	**-.41****	**.49****
Meta-trust	7	.62**	.33**	-.34**	.64**	.81**	.63**	1.00	**-.64****	**.41****
Maintenance	8	-.64**	-.37**	.46**	-.75**	-.79**	-.47**	-.75**	1.00	**-.34****
Liking	9	.17	.03	.02	.27**	.50**	.59**	.38**	-.38**	1.00

* $p < .05$; ** $p < .01$. Correlations for the first scenario of each participant are reported in the upper part of the table (n = 154). Correlations for the second scenario of each participant are reported in the lower part of the table (n = 123).

Three cases that deviated more than 3.3 standard deviations from the mean were considered univariate outliers (Tabachnick& Fidell, 2014), and two cases with Mahalanobis distance larger than critical chi-square value (Tabachnick & Fidell, 2014) for 9 degrees of freedom , χ^2 (9) = 27.88, $p < .001$, were considered multivariate outliers. The five cases were removed from the analysis.

I conducted a 2 (CS vs. MP) x 3 (Complementary vs. Non-complementary Uncontrollable vs. Non-complementary Controllable) Multivariate Repeated Measures GLM on all dependent variables and manipulation check using IBM SPSS 23. Data analyzes followed the same statistical procedures as Study 4a. Subsequent analyses followed the same procedures as for planned contrasts and post-hoc tests as Study 4a. Significance tests were estimated with a 95% CI.

Table 21 – Univariate tests of main effects and two- and three-way interactions on each manipulation check and dependent variable

	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2	df	*F*	*p*	η_p^2
	RelComp				RM				RelComp*RM			
RelComp	2	**56.91**	**<.001**	**.50**	1	**8.60**	**.004**	**.07**	2	**8.92**	**<.001**	**.13**
Positive Affect	2	**117.48**	**<.001**	**.67**	1	**10.96**	**.001**	**.09**	2	**12.96**	**<.001**	**.18**
Negative Affect	2	**100.17**	**<.001**	**.64**	1	**12.14**	**.001**	**.10**	2	**6.51**	**.002**	**.10**
Control	2	**26.19**	**<.001**	**.31**	1	**8.19**	**.005**	**.07**	2	**4.82**	**.010**	**.08**
Belonging	2	**17.20**	**<.001**	**.23**	1	**103.47**	**<.001**	**.47**	2	**3.91**	**.023**	**.06**
Trust	2	**3.60**	**.030**	**.06**	1	**142.00**	**<.001**	**.55**	2	1.92	.152	.03
Meta-trust	2	**31.87**	**<.001**	**.36**	1	**79.67**	**<.001**	**.41**	2	**7.11**	**.001**	**.11**
Maintenance	2	**20.50**	**<.001**	**.26**	1	**31.53**	**<.001**	**.22**	2	**3.78**	**.026**	**.06**
Liking	2	0.43	>.250	-	1	**89.24**	**<.001**	**.44**	2	0.30	>.250	-
Error	115				115				115			

4.9.2.1 Preliminary Analysis

Multivariate tests showed that the effects of RelComp, $F(18, 214) = 15.37$, $p < .001$, $\eta_p^2 = .56$, RM, $F(9, 107) = 22.06$, $p < .001$, $\eta_p^2 = .65$, the two-way interaction, $F(18, 214) = 3.09$, $p < .001$, $\eta_p^2 = .21$, and the planned contrasts, $F(18, 98) = 17.88$, $p < .001$, $\eta_p^2 = .77$, were statistically significant. The Univariate tests of the main effects, and two-way interaction on each dependent variable and manipulation check are presented in Table 21. Estimated marginal means, standard errors, significance tests and effect sizes are displayed in Table 22, for the main effects, and in Table 23 for the two-way interaction.

Table 22 - Estimated Marginal Means and Standard Errors for the main effects

	Comp		Non-comp Uncontrollable		Non-comp Controllable		Communal Sharing		Market Pricing	
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
RelComp	**5.26**^{a}	0.14	**4.11**^{b}	0.14	**3.21**^{c}	0.13	**4.31**^{a}	0.09	**4.08**^{b}	0.08
Positive Affect	**5.55**^{a}	0.19	**2.59**^{b}	0.19	**1.81**^{c}	0.18	**3.56**^{a}	0.13	**3.08**^{b}	0.13
Negative Affect	**2.43**^{a}	0.19	**5.37**^{b}	0.19	**5.93**^{b}	0.18	**4.30**^{a}	0.13	**4.85**^{b}	0.14
Control	**5.02**^{a}	0.15	**4.37**^{b}	0.15	**3.54**^{c}	0.14	**4.45**^{a}	0.10	**4.17**^{b}	0.09
Belonging	**5.49**^{a}	0.16	**5.37**^{a}	0.16	**4.31**^{b}	0.15	**5.54**^{a}	0.10	**4.58**^{b}	0.10
Trust	**4.93**^{ab}	0.12	**5.20**^{a}	0.12	**4.74**^{b}	0.12	**5.51**^{a}	0.09	**4.40**^{b}	0.08
Meta-trust	**5.51**^{a}	0.17	**5.26**^{a}	0.17	**3.82**^{b}	0.16	**5.36**^{a}	0.12	**4.37**^{b}	0.10
Maintenance	**2.45**^{a}	0.16	**2.83**^{a}	0.16	**3.83**^{b}	0.15	**2.76**^{a}	0.11	**3.31**^{b}	0.10
Liking	**5.75**^{a}	0.13	**5.90**^{a}	0.13	**5.75**^{a}	0.12	**6.38**^{a}	0.09	**5.21**^{b}	0.11
	n = 38		*n* = 38		*n* = 42		*n* = 118		*n* = 118	

Note: Simple mean comparisons between conditions are identified with superscripts *a*, *b* and *c*. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$. See effect sizes in Table 21.

4.9.2.2 Manipulation Check

The main effect of RelComp on the manipulation check was qualified by a two-way interaction. As expected, in both RMs, Perceived RelComp was higher in the Complementary condition when compared with the Non-complementary conditions either separately or together (Table 23). These differences were more pronounced in the CS scenario. Also in both RMs, Perceived RelComp was higher in the Non-comp$_{Uncontrollable}$ condition than in the Non-comp$_{Controllable}$ condition.

Table 23 - Estimated marginal means, standard errors, planned contrasts and post-hoc tests, and effect sizes for the two-way interaction.

	Comp		Non-comp Uncontrollable		Non-comp Controllable		Contrast Comp vs. Non-Comp			
	n = 38		*n* = 38		*n* = 42					
	M	*SE*	*M*	*SE*	*M*	*SE*	Est.	*SE*	*p*	η_p^2
					Communal Sharing					
RelComp	^{x}**5.49**^{a}	0.16	^{x}**4.33**^{b}	0.16	^{x}**3.10**^{c}	0.15	1.78	0.20	**<.001**	**.41**
Positive Affect	^{x}**6.29**^{a}	0.22	^{x}**2.68**^{b}	0.22	^{x}**1.69**^{c}	0.21	4.10	0.27	**<.001**	**.66**
Negative Affect	^{x}**1.76**^{a}	0.23	^{x}**5.21**^{b}	0.23	^{x}**5.93**^{b}	0.22	-3.81	0.28	**<.001**	**.61**
Control	^{x}**5.23**^{a}	0.18	^{x}**4.64**^{a}	0.18	^{x}**3.47**^{b}	0.17	1.17	0.22	**<.001**	**.20**
Belonging	^{x}**5.82**^{a}	0.18	^{x}**6.03**^{a}	0.18	^{x}**4.77**^{b}	0.17	0.42	0.22	.062	.03
Trust	^{x}**5.37**^{a}	0.15	^{x}**5.87**^{a}	0.15	^{x}**5.28**^{a}	0.15	-0.20	0.19	>.250	-
Meta-trust	^{x}**5.81**^{a}	0.21	^{x}**6.04**^{a}	0.21	^{x}**4.21**^{b}	0.20	0.68	0.25	**.008**	**.06**
Maintenance	^{x}**2.20**^{a}	0.19	^{x}**2.38**^{a}	0.19	^{x}**3.70**^{b}	0.18	-0.84	0.23	**<.001**	**.10**
Liking	^{x}**6.40**^{a}	0.15	^{x}**6.42**^{a}	0.15	^{x}**6.33**^{a}	0.14	0.02	0.18	>.250	-
					Market Pricing					
RelComp	^{y}**5.03**^{a}	0.15	^{y}**3.89**^{b}	0.15	^{x}**3.33**^{c}	0.14	1.43	0.18	**< .001**	**.36**
Positive Affect	^{y}**4.82**^{a}	0.22	^{x}**2.50**^{b}	0.22	^{x}**1.93**^{b}	0.21	2.60	0.27	**< .001**	**.44**
Negative Affect	^{y}**3.11**^{a}	0.24	^{x}**5.53**^{b}	0.24	^{x}**5.93**^{b}	0.23	-2.62	0.29	**< .001**	**.42**
Control	^{y}**4.81**^{a}	0.16	^{y}**4.10**^{b}	0.16	^{x}**3.60**^{b}	0.15	0.96	0.20	**< .001**	**.17**
Belonging	^{y}**5.16**^{a}	0.18	^{y}**4.72**^{a}	0.18	^{y}**3.86**^{b}	0.17	0.87	0.22	**< .001**	**.12**
Trust	^{y}**4.48**^{a}	0.14	^{y}**4.53**^{a}	0.14	^{y}**4.21**^{a}	0.14	0.11	0.17	>.250	-
Meta-trust	^{y}**5.21**^{a}	0.18	^{y}**4.47**^{b}	0.18	^{y}**3.43**^{c}	0.17	1.26	0.22	**< .001**	**.23**
Maintenance	^{y}**2.70**^{a}	0.18	^{y}**3.28**^{a}	0.18	^{x}**3.96**^{b}	0.17	-0.92	0.22	**< .001**	**.14**
Liking	^{y}**5.11**^{a}	0.19	^{y}**5.37**^{a}	0.19	^{y}**5.17**^{a}	0.18	-0.16	0.23	>.250	-

Note: Superscripts *a*, *b* and *c* identify simple mean comparisons between conditions of RelComp. Superscripts *x* and *y* identify simple mean comparisons between conditions of RM. Different superscripts are used for means with significant differences, $p < .05$. Equal superscripts are used for means with non-significant differences, $p > .05$.

4.9.2.3 Effects of RelComp on the Dependent Variables

I predicted higher ratings on Positive Affect, Control, Belonging and Meta-trust, and lower ratings on Negative Affect and Maintenance, in the Complementary condition than in the two Non-complementary conditions together, in both conditions of RM. As hypothesized,

planned contrasts showed that participants in the CS and MP scenarios experienced higher Positive Affect, Control, Meta-trust, and lower Negative Affect and Maintenance, in the Complementary condition when compared with the two Non-complementary responses together. The difference between the Complementary condition and the two Non-complementary conditions on Belonging was also significant in the MP scenarios, but marginal in the CS scenario (Table 23).

The conservative version of the hypotheses would predict higher ratings of Positive Affect, Control, Belonging and Meta-trust, and lower ratings of Negative Affect and Maintenance, in the Complementary condition when compared with each Non-complementary condition separately with post-hoc tests, at each level of RM. These hypotheses would be supported by main effects of RelComp on the dependent variables, showing that the predicted differences were constant across RM scenarios, or by two-way interactions, showing that the predicted differences were weakened or enlarged across RM scenarios.

Post-hoc tests showed that the main effects of RelComp on Positive Affect, Negative Affect, Control, Belonging, Meta-trust, and Maintenance, were significant and qualified by an interaction with RM (Table 21). In both RM scenarios (Table 23), Positive Affect was higher, and Negative Affect was lower, in the Complementary condition when compared with each Non-complementary condition separately; but Belonging was higher, and Maintenance was lower, in the Complementary condition, when compared with the Non-comp$_{\text{Controllable}}$ condition, but not when compared with the Non-comp$_{\text{Uncontrollable}}$ condition. In the CS scenario (Table 23), Control and Meta-trust were higher in the Complementary condition, when compared with the Non-comp$_{\text{Controllable}}$ condition, but not when compared with the Non-comp$_{\text{Uncontrollable}}$ condition. In the MP scenario, Control and Meta-trust were higher in the Complementary condition when compared with each Non-complementary condition separately.

Differences between Non-complementary conditions. The two-way interactions showed that, in both RMs, Belonging and Meta-Trust were higher, and Maintenance was lower, in the Non-comp$_{\text{Uncontrollable}}$ condition than in the Non-comp$_{\text{Controllable}}$ condition (Table 23). In the CS scenario, but not in the MP scenario, Positive Affect and Control were higher in the Non-comp$_{\text{Uncontrollable}}$ condition than in the Non-comp$_{\text{Controllable}}$ condition. There were no

differences between the Non-complementary conditions on Negative Affect in either the CS or the MP scenario.

4.9.2.4 Exploratory Analyses

Effects of RelComp on Liking and Trust. There was a main effect of RelComp on Trust, but not on Liking. The two-way interaction was not significant on neither of the variables (Table 21). Trust was only lower in the Non-comp$_{Controllable}$ condition when compared with the Non-comp$_{Uncontrollable}$ condition.

Differences between RMs. The main effect of RM on the manipulation check, Positive Affect, Negative Affect, Control, Belonging, Meta-trust and Maintenance was qualified by an interaction with RelComp. Perceived RelComp and Control were higher, and Maintenance was lower, in the CS scenario than in the MP scenario, but only among the Complementary condition and the Non-comp$_{Uncontrollable}$ condition. Positive Affect was higher, and Negative Affect was lower, in the CS scenario than in the MP scenario, but only among participants in the Complementary condition. Belonging and Meta-trust were higher in the CS than in the MP scenario across the three conditions of RelComp, but these differences were larger (M_{diff} > 1) in the Non-comp$_{Uncontrollable}$ condition than in the other two conditions. The main effect of RM on Trust and Liking was not qualified by and interaction with RelComp. Trust and Liking were higher in the CS scenario than in the MP scenario.

Subscales of Perceived RelComp. The statistical procedures to explore whether participants in different conditions of RelComp differed in their ratings on the two subscales of the manipulation check were the same as in Study 4a. A 2 (CS vs. MP) x 3 (Complementary vs. Non-complementary Uncontrollable vs. Non-complementary Controllable) Multivariate Repeated Measures GLM was conducted on all dependent variables and manipulation check subscales. Multivariate tests showed statistically significant main effects of RelComp, $F(16, 216) = 16.57$, $p < .001$, $\eta_p^2 = .55$, and RM, $F(8, 108) = 15.61$, $p < .001$, $\eta_p^2 = .54$, and interaction effect, $F(16, 216) = 3.31$, $p < .001$, $\eta_p^2 = .20$. The results on the dependent variables were the same as in the first GLM. Estimated marginal means were compared Bonferroni adjusted post-hoc tests.

Action complementarity subscale. The main effect of RelComp on the action complementarity subscale, $F(2, 115) = 71.41$, $p < .001$, $\eta_p^2 = .55$, was qualified by an interaction with RM, $F(2, 115) = 8.75$, $p < .001$, $\eta_p^2 = .13$. In both conditions of RM, action

complementarity was higher in the Complementary condition, EMM_{CS} = 5.64, SE = 0.19, EMM_{MP} = 5.29, SE = 0.18, than in the Non-comp$_{Uncontrollable}$ condition, EMM_{CS} = 3.73, SE = 0.19, p < .001, EMM_{MP} = 3.50, SE = 0.18, p < .001, and in the Non-comp$_{Controllable}$ condition, EMM_{CS} = 2.49 SE = 0.18, p < .001, EMM_{MP} = 2.97, SE = 0.18, p < .001. Action complementarity was also significantly higher in the Non-comp$_{Uncontrollable}$ condition than in the Non-comp$_{Controllable}$ condition, in the CS scenario, p < .001, but not in the MP scenario, p = .112.

Cognitive complementarity subscale. The main effect of RelComp on the cognitive subscale, $F(2, 115) = 18.65$, $p < .001$, $\eta_p^2 = .25$, was qualified by an interaction with RM, $F(2, 115) = 4.04$, $p = .020$, $\eta_p^2 = .07$. In both conditions of RM, cognitive complementarity was higher in the Complementary condition, EMM_{CS} = 5.32, SE = 0.20, p < .001, EMM_{MP} = 4.74, SE = 0.16, p < .001, and in the Non-comp$_{Uncontrollable}$ condition, EMM_{CS} = 5.04, SE = 0.20, p < .001, EMM_{MP} = 4.34, SE = 0.16, p = .022, when compared with the Non-comp$_{Controllable}$ condition, EMM_{CS} = 3.81, SE = 0.19, EMM_{MP} = 3.75, SE = 0.15. In both conditions of RM, there were no differences between the Complementary condition and the Non-comp$_{Uncontrollable}$ conditions (p < .200).

4.9.3 Discussion of Studies 4a and 4b

In Studies 1 to 3 the participants took the perspective of the initiator of the interaction. Therefore, these studies tested the effects of RelComp on the initiator's affect and need fulfillment, as the result of the partner's complementary or non-complementary response to a previous action by the initiator. Instead, in Studies 4a and 4b the participants took the perspective of the respondent in order to test whether affect and need fulfillment were enhanced by participant's own complementary or non-complementary response to a previous action by the partner. In addition, it was explored how effects of RelComp would depend on whether non-complementary actions were attributed to controllable (e.g., lack of effort or negligence; Non-complementary$_{Controllable}$ condition) or uncontrollable (e.g., bad luck; Non-complementary$_{Uncontrollable}$ condition) causes.

The two studies showed that, in the four RM scenarios, Positive Affect, Control, Belonging and Meta-trust were higher, whereas Negative Affect and Maintenance were lower, in the Complementary condition than in the two Non-complementary conditions together. This was true in all RM scenarios, with the exception of Belonging, which was marginally higher in the Complementary condition of the CS scenario. Thus, the predicted effects of

RelComp on participant's affective states and need fulfillment are not only experienced when the partner complements a previous action by oneself, but also when one complements a previous action by the partner. In other words, as far as affect and needs fulfillment are concerned, it is not relevant who initiates the relational pattern and who completes it by doing his part, insofar as the pattern is fulfilled.

When the two Non-complementary conditions were separately compared with the Complementary condition and with one another, the results showed, as anticipated, that causal attributions for Non-complementarity matter for Perceived RelComp, for Affect and for the fulfillment of needs to belong, to control and to feel trusted by the partner. First, Perceived RelComp, Positive Affect, Control, Belonging and Meta-trust were higher, whereas Negative Affect and Maintenance were lower, in the Complementary condition than in the Non-complementary$_{Controllable}$ condition, in all RM scenarios. These results show that failure to complement due to lack of effort or negligence (in the Non-complementary$_{Controllable}$ condition) consistently undermines affect, threatens the three needs in all kinds of relationships, and makes social interactions more effortful.

Second, comparisons between the two Non-complementary conditions revealed significant differences: on Perceived RelComp, Belonging, Meta-trust and Maintenance, in the CS, EM and MP scenarios; on Positive Affect, in the CS and AR scenarios; on Negative Affect, in the AR and EM scenarios; and on Control, in the CS and EM scenarios. In these conditions, Perceived RelComp, Positive Affect, Control, Belonging and Meta-trust were higher, whereas Negative Affect and Maintenance were lower in the Uncontrollable than in the Controllable condition. These results show that, in some relationships or situations, the negative effects of non-complementarity may be attenuated, and the experience of RelComp may be enhanced, if failure to perform one's part is attributed to causes beyond one's control, i.e., if one is perceived has having, at least, made an effort to do one's part.

Third, comparisons between the Complementary condition and the Non-complementary$_{Uncontrollable}$ conditions showed significant differences: on Perceived RelComp, Positive Affect and Negative Affect in the four RM scenarios; on Control in the AR, EM and MP scenarios; on Belonging and Maintenance in the AR scenario; and on Meta-trust in the AR and MP scenarios. On the one hand, these results suggest that, even though perceived intentions or efforts in favor of the relational pattern attenuate the negative effects of failure to complement on Perceived RelComp and Affect, actually performing one's part may

significantly improve affect and Perceived RelComp. In other words, action, in addition to intentions, is a necessary condition for a complete experience of RelComp and its affective consequences. On the other hand, in some relationships or situations, making an effort or showing intentions in favor of the relational pattern may be a sufficient condition to fully predict the partner's action, to feel included and accepted, to feel trusted by the partner, and to experience a smooth interaction. In other words, Non-complementarity may not necessarily threaten basic needs as long as the partner who failed to perform his part is perceived, at least, to have made an effort or to be committed to doing his part.

Furthermore, the two studies also demonstrated that it is possible to experience different degrees of RelComp, depending on whether both actions and psychological states are complementary (as in the Complementary condition), only psychological states are complementary (as in the Non-complementary$_{\text{Uncontrollable}}$ condition), or neither actions nor psychological states are complementary (as in the Non-complementary$_{\text{Controllable}}$ condition). This was evident in the CS, EM and MP scenarios where Perceived RelComp decreased linearly from the Complementary condition to the Non-complementary$_{\text{Uncontrollable}}$ condition and from this to the Non-complementary$_{\text{Controllable}}$ condition.

Interestingly, when the cognitive complementarity subscale of the manipulation check was analyzed separately, cognitive complementarity in the Non-complementary$_{\text{Uncontrollable}}$ condition of the CS, EM and MP scenarios, was higher than in the Non-complementary$_{\text{Controllable}}$ condition, but not lower than in the Complementary condition. On the other hand, in the AR scenario, Perceived RelComp and cognitive complementarity in the Non-complementary$_{\text{Uncontrollable}}$ condition were lower than the in Complementary condition, but not higher than in the Non-complementary$_{\text{Controllable}}$ condition. These results demonstrate that individuals can, indeed, experience complementarity of psychological states and complementarity of actions independently of one another; and that the combination of the two contributes to experiencing different degrees of overall RelComp.

Finally, the results showed that action complementarity and cognitive complementarity are not equally important for affect and need fulfillment. In all RM scenarios, high Positive Affect (i.e., above the midpoint of the scale) and low Negative Affect (i.e., below the mind point of the scale) were elicited by action complementarity (as shown by the Complementary condition), rather than by cognitive complementarity (as shown by the Non-complementary$_{\text{Uncontrollable}}$ condition). In other words, cognitive complementarity is not

sufficient for experiencing high Positive Affect and low Negative Affect on social interactions: action complementarity is a necessary condition. This is relevant from a theoretical point of view because goal attainment is associated with positive affect and failure to attain a goal is associated to negative affect (Martin & Tesser, 2009). If the goal is the relational pattern, then, high positive affect and low negative affect should be experienced when the goal is fully attained, i.e., when the actions of each participant are complementary, in addition to their psychological states.

Control was enhanced by action complementarity in the AR, EM, and MP scenarios—as shown by the significant differences between the Complementary condition and the Non-complementary$_{Uncontrollable}$ condition—and by cognitive complementarity in the CS and EM scenarios—as shown by the significant differences between the Non-complementary$_{Uncontrollable}$ condition and the Non-complementary$_{Controllable}$ condition. On AR, EM and MP interactions, the sense of Control over the partner's actions seems to be contingent on participants actually performing their parts, in addition to only intending to do so. On the other hand, in CS interactions, intentions seem to be sufficient for experiencing Control. Possibly, this is due to the fact that in CS relationships people do not keep track of each other's contributions (A. Fiske, 1991, 1992). They give what they can and take what they need, as long as they share the same essence or belong to the same group. Hence, in CS interactions, people are more responsive to intentions, commitments, and efforts to contribute, than to how much each one actually contributes. Therefore, the experience of Control over the partner's actions on a CS relationship may be contingent on perceived commitments to perform one's part the best one can, rather than on how much one can actually do.

Belonging was only enhanced by action complementarity in the AR scenario—as shown by differences between the Complementary condition and the Non-complementary$_{Uncontrollable}$ condition. However, since in the AR scenario cognitive complementarity was only experienced in the Complementary condition it is not possible to take conclusions about cognitive complementarity when action complementarity was absent, i.e., in the Non-complementary$_{Uncontrollable}$ condition. In the CS, EM and MP scenarios, Belonging was only enhanced by cognitive complementarity—as shown by differences between the Non-complementary$_{Uncontrollable}$ condition and the Non-complementary$_{Controllable}$ condition. Similarly, Meta-trust was more affected by cognitive complementarity than by action complementarity, in the CS, EM, and MP scenarios, since differences were lager between the Non-complementary$_{Uncontrollable}$ condition and the Non-complementary$_{Controllable}$ condition than

between the Complementary condition and the Non-complementary$_{Uncontrollable}$ condition. These results suggest that, being committed to doing one's part may be sufficient condition for anticipating feeling accepted, valued and trusted by the partner.

Such findings on Belonging and Meta-trust also show that one's perceptions about the partner's evaluations of oneself are not only affected by the partner's actions, but also by one's own actions. This has implications for the understanding of impression management strategies, since it implies that people anticipate that one way to earn the partner's respect, acceptance, approval and trust is to act in complementarity, or at least to appear to others that they have made an effort to do so.

The fact that cognitive complementarity was more important for Belonging and Meta-trust than action complementarity has important implications for understanding the use of excuses in social relationships. One way people who have failed to complement may communicate that they made an effort (even when they have not) is by excusing themselves with uncontrollable causes. Excuses are a common strategy people use to preserve a favorable self-image, and to protect from rejection by others, after engaging in unacceptable behavior (Leary, 2010); and uncontrollable reasons are especially good excuses (Weiner, et al., 1987). The current results suggest that the reason why uncontrollable excuses mitigate the negative effects of non-complementary behavior is that by minimizing one's responsibility it preserves cognitive complementarity.

Finally, Trust and Liking were better predicted by RMs than RelComp. Not surprisingly, liking and trusting the partner are not affected by one's actions towards the partner. One the other hand, people like and trust the partner more on CS than MP interaction and on EM than AR interactions. It is however possible that, there was a confound between the RM implemented on the interaction and RM that prevails on the overall relationship. On CS and EM interactions, the characters were family and roommates, respectively. These bonds are associated with more intimacy and closeness, than the business bonds on AR and MP scenarios. An EM interaction with a stranger or an MP interaction with a friend, for instance, might have produced different results.

4.10 General Discussion

Engaging in social relationship is crucial for the fulfillment of core social needs to Belong, to Control and to Trust. The processes proposed so far to describe how relationships

satiate the three needs are bounded by different and disconnected research traditions, which emphasize particular needs of the individual, but neglect the nature of social relationships as such. Therefore, these processes can explain how certain needs are met in specific kinds of relationships, but can hardly be generalized to other types of relationships and needs. Building on the notion that to relate is to pursue RelComp, I proposed that RelComp is sufficient condition for fulfilling the core needs to Belong, to Control, and to Trust, regardless of the particular kind of relationship people engage in. Additionally, I also proposed that RelComp is an affectively charged state of affairs, in that individuals experience Positive Affect whenever they achieve complementarity.

In five online experiments, participants read descriptions of complementary or non-complementary interactions between two characters—one initiator and one respondent—and reported how they would feel if they were in one of the character's shoes. The interaction descriptions also manipulated different RMs. It was predicted that participants in complementary interactions would experience more Positive Affect, Control, Belonging and Trust, and less Negative Affect than participants in non-complementary interactions.

In addition to testing these hypotheses, each study was designed to address specific aspects of social interactions. Study 1 ruled out the confound between RelComp and expectations about the partner's action in CS and MP interactions. Studies 2 and 3 dealt with the confound between RelComp and gaining tangible benefits from the partner in interactions based on the four RMs. Moreover, studies 1 to 3 addressed how affect and needs of the initiator were affected by the partner's complementary or non-complementary response to the initiator's own previous action. Conversely, Studies 4a and 4b addressed how affect and needs of the respondent were affected by the initiator's own complementary or non-complementary response to a previous action by the partner. Furthermore, Studies 4a and 4b also explored how affect and need fulfillment, in CS, AR, EM and MP interactions, were affected by attributions of non-complementarity to controllable (e.g., lack of effort or negligence) and uncontrollable causes (e.g., bad luck), and by action complementarity (when cognitive complementarity was constant, and present) and cognitive complementarity (when action complementarity was constant, and absent). The hypotheses were generally supported by the five studies.

4.10.1. RelComp Satiates the Need for Control

Previous research about the role of the control motive on social relationships suggest that people typically gain control by having power over others (S. Fiske & Dépret, 1996; Galinsky, et al., 2003; McClelland, 1975) or by attending to and complying with powerful others (e.g., Fennis & Aarts, 2012). Hence, these approaches emphasize a connection between the control motive and hierarchical or power relationships. Instead, I proposed that control can be satiated in all kinds of relationships insofar as people experience RelComp with their partners.

The five studies supported the hypothesis that Control is higher in complementary than in non-complementary interactions. Apparently, this effect is robust in interactions according to the four RMs, and both when the complementary or non-complementary action is performed by the partner (Studies 1 to 3) or by the participant (Studies 4a and 4b). The results also suggest that the effects of RelComp on Control do not depend on whether the complementary or non-complementary action by the partner is expected or unexpected by the participant (Study 1). Control also seems to be more consistently enhanced by RelComp than by benefits (Studies 2 and 3). Even when the complementary response by the partner is less beneficial than the non-complementary response, Control is generally higher in complementary interactions than in non-complementary interactions. Among complementary responses, benefits and costs do not make a difference in perceived Control. However, when responses are non-complementary, the negative effects of the lack of complementarity on Control can be attenuated by benefits, especially in AR (Study 2) and MP interactions (Study 3), although not enough to match the levels of Control experienced in complementary interactions.

Control is also consistently enhanced when the complementary action is performed by the participant itself (Studies 4a and 4b). Regardless of whether causes for failure to perform one's part are controllable or uncontrollable, Control is higher in complementary interactions, at least in AR, EM and MP relationships. On the other hand, in CS relationships, it is possible that a sense of Control can be preserved despite participants' failure to perform the complementary action, insofar as failure is attributed to uncontrollable causes. Apparently, in CS interactions, making an effort or showing intentions in favor of the relational pattern is sufficient for experiencing Control. In CS relationships people do not keep track of each other's contributions, as long as participants give what they can and take what they need (A. Fiske, 1991, 1992). Therefore, it is possible that, in CS interactions, experienced Control over

the partner's action is more contingent on perceived commitments to contribute the best one can, rather than on how much one can actually do. This means that even though participants' overt behaviors do not have to be complementary for experiencing Control in CS interactions, their psychological states do.

4.10.2. RelComp Satiates the Need to Belong

By definition, the need to belong requires that people engage in lasting, positive and significant relationships (Baumeister & Leary, 1995) in order to be fulfilled. Since these features are typical of CS relationships, it is not clear whether and how people experience a sense of belonging in other types of relationships in which bonds are not expected to last, and which lack the emotional significance of marriage, parenthood or friendships (e.g., business relationships, or relationships with strangers). It has also been proposed that people feel included when their perceived relational evaluation by others is high, and rejected when their perceived relational evaluation is low (Leary, 2001; Leary & Allen, 2011). However, the standards that people use for assessing their relational value are not clearly defined in the literature.

Consistently with previous research on social cognition (A. Fiske, 1993; A. Fiske, 1995; A. Fiske & Haslam, 1997; A. Fiske, Haslam & S. Fiske, 1991), I propose that people use RMs as standards for evaluating their relational partners. In order to determine whether it is possible and desirable to continue relating with each other, relational partners evaluate one another regarding each other's ability and willingness to apply the same RMs to their relationship. Hence, the experience of RelComp is evidence that both parties are willing and able to relate by the same relational standards, and hence, a signal of each other's positive relational value. On the other hand, a complementary response to a previous action by the partner is also a practical validation of the partner's action and, thereby, a signal of one's positive relational evaluation of the partner.

The five studies supported the hypothesis that the sense of Belonging is higher in complementary than in non-complementary interactions, in the four kinds of relationships. Moreover, this effect was robust both when the complementary or non-complementary responses were performed by the partner—communicating the partner's relational evaluation of the participant (Studies 1 to 3), and by the participant—communicating the participant's relational value to the partner (Studies 4a and 4b). The results also suggest that the effect of

RelComp on Belonging is not dependent on whether the partner's action is expected or unexpected (Study 1). Furthermore, Belonging, like Control, seems to be more consistently enhanced by RelComp than by benefits (Studies 2 and 3). Belonging is generally higher in complementary interactions, even when complementarity is less beneficial than non-complementarity. When responses are complementary, benefits do not enhance Belonging. Complementarity is sufficient to signal positive relational evaluation. One the other hand, when responses are non-complementary, benefits may attenuate or reverse the negative effects of non-complementarity, particularly in AR (Study 2) and MP interactions (Study 3), respectively. Possibly, in some interactions or relationships when complementarity is absent, offering unexpected benefits can be an alternative way to communicate one's positive relational evaluation of the partner.

Belonging is also consistently enhanced when the complementary action is performed by the participant itself (Studies 4a and 4b). This, however, may vary depending on whether non-complementarity is attributed to controllable or uncontrollable causes. It seems that having intentions or commitment in favor of the relational pattern despite one's failure to perform the complementary part (as in the uncontrollable conditions), can make a difference on one's relational value. In some relationships (e.g., AR in Study 4a) it is not sufficient to make an effort and to show intentions to complement: actually performing the complementary behavior is necessary to enhance relational value and sense of Belonging. In other relationships (e.g., EM in Study 4a, CS and MP in Study 4b), however, intentions in favor of the relational pattern may suffice to allow participants to experience as much Belonging as they do in complementary interactions. In other words "willing to" implement the relational pattern, can be more important for one's relational value than "being able to" do so. This means that insofar as participants' psychological states (i.e., intentions, commitments) are complementary, their overt behaviors may not need to be complementary in order to ensure relational value and Belonging.

It has been proposed that, in order to preserve relational value, and to avoid rejection after engaging in unacceptable behavior, people present excuses or accounts for their actions (Leary, 2010). Excuses are particularly effective when they present uncontrollable reasons for behavior (Weiner, et al., 1987). Consistently with these proposals and with the hypothesis tested here, when they fail to perform their part of the relational pattern, people can successfully protect their relational value by excusing failure with uncontrollable reasons

(e.g., “I got stuck in traffic”; “the computer crashed”). This way they simulate intentions and commitments in favor of the relational pattern, and, thereby, preserve complementarity of psychological states.

4.10.3. RelComp Increases Trustworthiness

Trust behavior has been defined as a decision to become vulnerable to another person’s exploitation to possibly achieve a benefit (Dunning, et al, 2014). Such decisions are based, in part, on trustworthiness expectations, i.e., beliefs about trustee’s benevolent intentions towards the trustor (Thielmann & Hilbig, 2015). It has been proposed that such beliefs are developed in trust experiences, with the same partner (e.g., Wieselquist, et al., 1999) or with different partners in similar situations (e.g., Bolton, Katok & Ockenfels, 2004), in which the partner does not exploit the trustor’s vulnerability, and, instead accommodates to the trustor’s needs. This proposal, however, does not explain how people accept vulnerability by trusting a partner for the first time, i.e., in the absence of previous experiences. Some alternatives are available, that do not require previous vulnerability experiences with a partner. Some examples are facial features of the trustee (e.g., Stirrat, & Perrett, 2010; Todorov, Pakrashi & Oosterhof, 2009), group membership of the trustee (e.g., Foddy, Platow, & Yamagishi, 2009), or intuitive moral judgments by the trustee (Everett, Pizarro & Crockett, 2016).

Instead, I propose that trust behavior is a particular case of pursuing RelComp in situations of vulnerability, and that trustworthiness expectations are the same as expectations about the partner’s relational reliability. Therefore, expectations about trustworthiness can be developed in any kind of social interaction regardless of vulnerability. The experience of RelComp (or lack thereof) in ordinary interactions informs each participant that the partner applies the same (or different) standards to their relationship, and is, therefore, a reliable relational partner. Hence, complementary actions are a sign of trustworthiness.

Studies 1 to 3 supported the hypothesis that Trust in the partner is higher when the partner’s response to a previous action by the trustor is complementary than non-complementary, in the four kinds of relationships, and in situations that do not necessarily involve vulnerability. Study 1 suggested that the effects of RelComp on Trust is robust both when the partner’s response is expected and unexpected. Studies 2 and 3 suggest that Trust is more strongly affected by benefits than the other variables, but that RelComp enhances Trust even when benefits are absent. In some relationships (e.g., CS, AR, EM in Study 2) Trust can

be higher in complementary interactions, even when complementarity is less beneficial than non-complementarity. Crucially, when responses are complementary, benefits do not enhance Trust. Complementary behavior is sufficient to signal trustworthiness. However, it can also happen that depending on the RM of the non-complementary response (e.g., CS, EM in Study 2), benefits can cancel the negative effects of non-complementarity on Trust. In other words, the respondent's trustworthiness can be preserved if the non-complementary response is beneficial to the partner.

Consistently with previous proposals, these results show that accommodating to the trustor's needs by doing something beneficial, is, indeed, one important sign of trustworthiness (e.g., Shallcross & Simpson, 2012; Wieselquist, et al., 1999). On the other hand, benefiting the partner by accommodating to his needs is not the only, nor the most important way to signal trustworthiness. Showing relational reliability by engaging in complementary behavior is an alternative way to earn the partner's trust. Hence, benefits and RelComp are two foundations of interpersonal trust. This explains why people try to compensate their partners with gifts or sacrifices of many kinds when they fail to follow through with previous implicit commitments or explicit promises. It also explains why, when their actions are costly to the partner, people appeal to relational standards. For example, they may discuss each other's obligations and duties within the relationship (for an account of RMs as moral motives see Rai & A. Fiske, 2011).

Studies 4a and 4b also showed that people anticipate more Trust by the partner after they have engaged in complementary behavior. However, as with Belonging, this may depend on whether the lack of complementarity is due to controllable or uncontrollable causes. In some relationships (e.g., AR in study 4a, and MP in study 4b) actually performing the complementary action is necessary to ensure one's relational reliability and trustworthiness, while in other relationships (e.g., EM in study 4a, and CS in study 4b) showing one's commitment, or intention to doing so (as in uncontrollable conditions) is sufficient. In other words "willing to" act according to a given relational standard can be more important for one's trustworthiness than "being able to" do so. This means that participants' behaviors may not need to be complementary in order to ensure Trust, insofar as their psychological states (i.e., intentions, commitments) are complementary.

4.10.4. RelComp is Affectively Charged

It has been established that motivated behavior is associated to positive affect the closer it gets to its goal, and to negative affect, the farther its gets from its goal (Martin & Tesser, 2009). Hence, if RelComp is a motivating state of affairs, then individuals should experience high positive affect and low negative affect when the pursued relational pattern is fulfilled.

The five studies consistently showed that participants in complementary interactions experienced higher positive affect and lower negative affect than those in non-complementary interactions, both when the complementary action was performed by the participant (Studies 4a and 4b) or by the partner (Studies 1 to 3). The results also suggest that the effects of RelComp on Affect do not depend on whether the complementary or non-complementary action by the partner is expected or unexpected by the participant (Study 1). Affect also seems to be more consistently enhanced by RelComp than by benefits. In most relationships Affect generally improves in complementary interactions, even whenthe complementary response by the partner is less beneficial than the non-complementary response. When responses are complementary the effects of benefits on Affect are not consistent. In some cases, benefits enhance Affect (e.g., EM and MP in Study 2), while other cases benefits do not make a difference (CS and AR in Study 2), or even decrease Affect (MP in Study 3). When responses are non-complementary, benefits may attenuate (Study 2) or even cancel (Study 3) their negative effects on Affect.

Affect is also consistently enhanced when the complementary action is performed by the participant itself (Studies 4a and 4b). Regardless of whether causes for failure to perform one's part are controllable or uncontrollable, Positive Affect is higher and Negative Affect is lower in complementary interactions, in the four kinds of relationships.

These results support the idea that RelComp is an affectively charged states of affairs, and hence, a motivating goal-state. It could, however, be argued that, differences in affect were not cause by RelComp itself, but instead by changes in need fulfillment. If Belonging, Control, and Trust are motivating, then experiencing (or anticipating) a sense of Control, Belonging and Trust, should be associated to positive affect and absence of negative affect. In fact, on studies 1 to 3 positive and negative affect, differed between conditions quite similarly to Belonging, Control and Trust. On the other hand, on studies 4a and 4b Affect varied across conditions differently from need fulfillment. In the Non-comp$_{\text{Uncontrollable}}$ condition,

experienced (on a scale from 1 to 7) Control was moderate on CS, EM and MP (> 4), and anticipated Belonging and Meta-trust were high on CS (> 6) and EM (> 5), and moderate on MP (> 4). However, experienced Positive Affect was low on CS (< 3), EM (< 4) and MP (< 3), and Negative Affect was high on CS and MP (> 5), and moderate on EM (> 4). These patterns show that Positive Affect was low and Negative Affect was high in non-complementary conditions despite Control, Belonging and Trust were actually experienced or anticipated. These patterns are better explained by the manipulation of RelComp than by a correlation with need fulfillment, and suggest that RelComp is associated with positive affect, independently of whether other needs are satisfied.

4.10.5. Ruling out Benefit from RelComp

The goal of Studies 2 and 3 was to show that the effects of RelComp that were observed in Study 1 were not caused by the fact that the Complementary interactions were manipulated as more beneficial than the Non-complementary ones. The two studies showed that the effects of RelComp on affect and need fulfillment were distinct of the effects of benefits, but that benefits can attenuate or cancel the negative effects of non-complementarity. Additional evidence in favor or the distinction between RelComp and benefits was offered by Studies 4a and 4b, even though this was not the purpose of these studies. On Studies 4a and 4b the participant took the perspective of the respondent, which either replied in a complementary way by giving a benefit to the partner, or in a non-complementary way by not giving the requested benefit. Following the rationale of Studies 2 and 3, the complementary response was more costly to the respondent than the non-complementary response. If the effects on the dependent variables were due to receiving benefits from a complementary response, then, Negative Affect and Maintenance should have been lower, while Positive Affect, Control, Belonging and Meta-trust should have been higher in the non-complementary than in the complementary condition. However, the opposite was observed, supporting the idea that RelComp affects affect and need fulfillment independently of whether benefits are received or offered.

4.10.6. Challenges for Future Studies

The current experiments used scenarios or vignettes to manipulate complementary and non-complementary social interactions. Scenarios enable controlling for processes that often go on in social interactions, which would otherwise be difficult to rule out through

observation of real life interactions. In addition, they allow the manipulation of a wide variety of social contexts and interactions that are virtually impossible to recreate in the laboratory.

However, reading social interactions and imagining psychological sates is not the same as engaging in a real interaction and experiencing its psychological consequences. Hence, future studies should test the effects of RelComp in affect and need fulfillment by manipulating complementarity in real interactions. This raises one difficult challenge. As I pointed out previously, relating is a flexible and dynamic process. In the same context, there can be more than one relational pattern sanctioned by cultural standards and individual motivations. Hence, when participants apply different RMs to their interaction, RelComp is still possible to achieve to the extent that the RM of one party is perceived by the partner as acceptable enough an alternative to structure the interaction. When the alternative RM is evaluated as acceptable it, then, becomes shared by both participants as a collective goal-state guiding the actions of each. In other words, in real life interactions where more than one RM is culturally acceptable, people deal with non-complementarity by spontaneously adjusting their actions to the RM suggested by the partner. This implicit negotiation of the relationship is especially evident in new, unknown and, hence, ambiguous interaction contexts, such as artificial experimental settings.

4.10.7. RelComp is a Fundamental Motive

The association of several human needs to one single process is not new. It has been shown that ostracism thwarts basic needs for belonging, control, self-esteem and meaningful existence (Williams, 2007). The five studies show that processes other than ostracism may also thwart fundamental needs. One interesting possibility is that ostracism is one particular and extreme case of lack of RelComp. Leary (2001) proposed that people exclude others to different degrees: not caring whether the individual is included or excluded, ignoring the individual, avoiding the individual, and physically ostracizing or abandoning the individual. Consequently, basic needs should be thwarted to different degrees depending on the degree of exclusion experienced. Similarly, the results on the manipulation check showed that people can experience RelComp to different degrees depending on whether the non-complementary behavior is due to uncontrollable or controllable causes (Studies 4a and 4b). In other words, Perceived RelComp decreased from its highest level, when the partners' overt behaviors and psychological states were complementary (as in the Complementary conditions), to an intermediate level, when only psychological states were complementary (as in the Non-

complementary$_{Uncontrollable}$ conditions), to the lowest level, when neither behaviors nor psychological states were complementary (as in the Non-complementary$_{Controllable}$ conditions). Crucially, variations in Perceived RelComp were correlated with variations in need fulfillment and affect, even between non-complementary interactions (Studies 2, 3, 4a and 4b). The counterpart of this idea is that people can complement each other's actions to different degrees. Hence, ostracism can be seen as one case of non-complementarity where, in addition to lacking complementary actions and psychological states in favor of the relational pattern, people have psychological states that are actually against realizing the relational pattern with that person, and engage in actions in order to avoid any interaction with that person. For instance, one typical method for studying the effects of ostracism is an online ball-toss game. In this game the players toss the ball to each other. At some point, the confederates stop tossing the ball to the participant, thus, excluding him from the activity (cf. Williams, 2007). This game can be conceived as an implementation of EM, implying that each participant should toss the ball an equal amount of times to the each player, and expect to be tossed the ball an equal amount of times as the other players. A mild form of exclusion and non-complementarity would be to toss the ball a smaller amount of times to the participant than to the other players, whereas an extreme form of exclusion and non-complementarity would be to stop tossing the ball to the participant. If ostracism is an extreme form of non-complementarity, then, it is not surprising that similar effects were observed when other forms of non-complementarity were manipulated. One advantage of the current proposal is that it conceptualizes the conditions for social inclusion and belonging that permeate virtually all kinds of human interactions, where ostracism and intimacy are absent, and tackles into the subtleties that characterize intermediate levels of inclusion and belonging.

It is possible that RelComp also enhances other motives that were not addressed in the five studies, such as self-esteem. Although self-esteem was not measured directly, some items of the belonging scale measuring relational value (e.g., "Mr. António really values me as a person"; "I feel appreciated by Mr. António"), were very similar in content to the items used by Zadro, Williams & Zadro (2005) to measure self-esteem after ostracism (e.g., "I felt that the other participants failed to perceive me as a worthy and likeable person"). In addition, it has been claimed that self-esteem is one indicator of whether one is included or excluded by others, in a way that high self-esteem signals inclusion and low self-esteem signals exclusion (Leary, Tambor, Terdal & Downs, 1995). Therefore, it is possible that, if belonging was

enhanced by RelComp, participants also experienced higher self-esteem in complementary interactions than in non-complementary interactions.

The fact that RelComp fulfills the three core social needs, suggests that it has a fundamental role in human well-being and health, at least to the extent that well-being depends on the fulfillment of belonging (Baumeister & Leary, 1995), control (Seligman, 1975), and trust (Poulin & Haase, 2015) motives. On the other hand, the fact that RelComp fulfills fundamental human needs also shows that the present theory is in any way a competitor with other theories. Instead, it sheds light on the processes that lead to an effective need fulfillment in social interactions. Moreover, it also shows that RelComp is not the only motive driving people to coordinate. People can have several alternative motives and pursue RelComp for ulterior reasons. They can be motivated to gain control over other people and resources, or they can seek other people's approval and trust in order to enjoy benefits of all kinds. The point here is that, be it the proximal or ultimate goal, RelComp *is* the goal directing individual's actions when relating to other people. Without attaining RelComp, the other needs will hardly be fulfilled in social interactions.

CHAPTER 5
Final Discussion and Conclusions

The common approaches to social motivation do not address motivation for social relating as such. Setting-based approaches describe social behavior in particular contexts by assuming that people want a particular incentive (e.g., Batson, Ahmad & Stocks, 2011; Deutsch & Gerard, 1955; Schachter, 1959; Tajfel & Turner, 1979). For that reason, these approaches can hardly be generalized to contexts and social behaviors other than those they were meant to explain in the first place. Need-based approaches, on the other hand, describe the basic human needs that motivate behavior in general (e.g., Baumeister & Leary, 1995; Deci & Ryan, 2000; Maslow, 1943; Pyszcsynski, et al., 1997). Therefore, they cannot explain particular kinds of social behavior in the absence of context-specific assumptions. At the same time, some theories within both setting- and need-based approaches emphasize the instrumental role of social relationships in fulfilling human desires (e.g., Deci & Ryan, 2000; Festinger, 1954; Hogg, 2000; Kelley & Thibaut, 1978; Oakes & Turner, 1980; Schachter, 1959), while others point up preferences for specific kinds of relationships (e.g., Atkinson, Heyns & Veroff, 1954; Baumeister & Leary, 1995; McAdams & Constantian, 1983; McClelland, 1975). Finally, all these proposals share in common the fact that they disregard the features that are common to all kinds of social relating. Instead, they focus on qualities of human individuals, such as needs, drives or overall motivational preferences that are usually fulfilled by means of engaging in social interactions. Some examples include needs for autonomy (Deci & Ryan, 2000), self-esteem (Tajfel & Turner, 1979), certainty (Hogg, 2000), belonging (Baumeister & Leary, 1995), power (McClelland, 1975), or intimacy (McAdams, 1980), that explain some kinds of social relating, but not all kinds.

In contrast, I proposed that all kinds of relationships share a common motivational form. All social coordinated interactions are structured according to four universal but culturally informed relational models (RM, A. Fiske, 1991, 1992). These models are standards people use to learn and detect particular kinds of relationships, to anticipate, understand and evaluate the actions of others, as well as to plan, generate and evaluate their own actions. Each model is cognitively represented in the form of knowledge about when and with whom certain aspects of the interaction should be coordinated, and how each participant should proceed. In other words, they inform what the parts of each participant are in a specific situation. When

relating in coordinated ways, each participant seeks to implement one of these models in conjunction with the partners, by performing his part while assuming or expecting that the partner seeks to implement the same relational model by performing her part. In other words, when relating, each individual seeks Relational Complementarity (RelComp) by fulfilling an interaction pattern that is constituted by mutually congruent actions by each participant. Virtually all kinds of social relationships are initiated and sustained to the extent the partners are able and willing to jointly create patterns of RelComp; and when they stop creating such patterns, relationships end. Hence, RelComp is by definition the goal of social relating; a unique kind of goal, in the sense that it represents a collective state of affairs involving the actions of two or more participants, and which each participant assumes to be owned by the others.

5.1. The General Motive of Social Relationships

The first theoretical hypothesis posited that RelComp is intrinsically satisfying. People like RelComp, either because it feels good, in the hedonic sense, or feels right, in the moral sense; and dislike non-complementarity, because it is unpleasant and feels wrong. For that reason, RelComp should be sufficient to energize and direct social behavior in the absence of other motives. Assuming that effort is one hallmark of motivated behavior, the first line of studies tested whether individuals pursuing the RelComp goal would spend more effort in performing their part of the relational pattern than those who did not. In four experiments, the RelComp goal was manipulated with a priming task. A goal-discrepancy was created for all conditions when the experimenter initiated a relational pattern by performing his part of giving instructions and rewarding the participant for taking part in this study. It was assumed that the discrepancy would be reduced by participants performing their part of the relational pattern – following the instructions and completing the tasks. It was expected that primed participants would be more motivated to perform their part and that this would reflect on their performance in the tasks assigned by the experimenter. Only one study found support for this hypothesis.

A second line of studies tested the effects of RelComp on another hallmark of motivated behavior: affect. Specifically, it was reasoned that, if RelComp is intrinsically satisfying, then, individuals participating in complementary interactions should experience more positive affect than those in non-complementary interactions. Five online experiments manipulating complementary and non-complementary interactions, in different kinds of relationships,

consistently showed that RelComp is an affectively charged state of affairs: participants reported more positive affect and less negative affect in complementary interactions. The studies also showed that the effects of RelComp on Affect were not due to receiving benefits by means of RelComp, nor to the partner's acting according to one's expectations. Finally, affect was enhanced by RelComp both when the complementary action was performed by the participant and by the partner.

These results are initial evidence in favor of the hypothesis that RelComp is intrinsically satisfying in relationships that are structured according to any of the four universal RMs. In other words RelComp has goal properties that do not depend on particular contexts or relationships. This means that in any social interaction where a pattern of RelComp (i.e., a cultural implementation of a RM) is activated as a collective-state goal, the individual will have an incentive to socially relate by performing her part of that pattern, while desiring or whishing that the partner performs his part, until the pattern is complete. I conceptualized patterns of RelComp as systems of knowledge about the *when*, *what*, with *whom* and *how* of the cultural implementations of RMs. In other words, the representation of each relational pattern includes information about the context (when) in which certain aspects of the interaction (what) are coordinated, with whom they are coordinated, and how each party should proceed. According to principles of goal representation and activation, if relational patterns are knowledge structures, then, the perception of an element of the pattern in the environment is sufficient for the relational pattern to become activated. Hence, by defining the goal state that is intrinsic to all forms of social relationships, and by describing the process by means of which that goal is activated in specific contexts, the concept of RelComp overcomes the limitations of setting-based approaches to social motivation.

The second theoretical hypothesis proposed that if RelComp is the defining feature of all kinds of social relating, then all human needs that are fulfilled by means of relationships can be fulfilled by complementary interactions. Specifically, I predicted that RelComp is sufficient condition for fulfilling the core needs to belong, to control, and to trust, regardless of the particular kind of relationship people engage in. The five online experiments showed that complementary interactions enhance participant's sense of Control, Belonging and Trust, regardless of the type of relationship, and of whether the complementary action is expected or unexpected, beneficial or costly and performed by the participant or the partner.

Hence, RelComp overcomes the limitation of need-based approaches. These results illustrate how basic human needs are fulfilled in specific contexts without resorting to context-specific assumptions. Instead, the main critical variable to look at is the particular cultural implementation of a RM that each participant uses to cognitively represent and to behaviorally construe their social interaction; or, in other words, the pattern of RelComp that each participant is pursuing as a goal.

5.2. What Kind of Intrinsic Motivation is RelComp?

I proposed that RelComp is intrinsically motivating and showed that states of RelComp are associated with positive affect. However, the term intrinsic motivation can be misleading depending on the definition of "intrinsic" that is adopted. Although it is clear that intrinsic means "inherent, essential, immanent, belonging to, from within" and extrinsic means "extraneous, not belonging to, from without", the term 'intrinsic motivation' has been used with different meanings by psychologists (Rheinberg, 2008, p. 325). Two definitions of intrinsic motivation have deserved special attention in research: a self-base definition and an activity-based one (Rheinberg, 2008). For Deci and Ryan (1980) "intrinsically motivated behaviors are those behaviors that are motivated by the underlying needs for competence and self-determination" (p. 42). The authors assume that in addition to tissue-based needs, humans need to experience the self as being the cause of behavior, as opposed to being controlled by external events. Hence, whether behavior is intrinsically or extrinsically motivated is a matter of whether the locus of causality of the action is perceived to be internal or external to the individual. Intrinsic motivation originates from within and extrinsic motivation from outside the person (e.g., social pressure, rewards and punishments).

On the other hand, intrinsic and extrinsic motivations have also been conceptualized in terms of where the desired outcomes or incentives for the activity are located (Rheinberg, 2008). Motivation is extrinsic when incentives reside outside the activity, i.e., they are consequent to it (e.g., studying to gain parent's approval), and intrinsic when the incentives are located within the activity, i.e., the activity is autotelic (e.g., studying for the pleasure of learning; Csikszentmihalyi, & Nakamura, 1989). In summary, self-based definitions emphasize the locus of causality (within vs. without the persons), and activity-based definitions emphasize the locus of the incentive (within vs. without the activity).

Whether within/without refers to locus of control or locus of incentive may seem a trivial distinction, but it is not. First, engaging in a pleasant activity is different from doing something on one's own initiative, in the absence of external rewards or punishments. One can feel competent and freely choose to do something that is uninteresting in itself (e.g., finding orthographic errors in a dissertation). As acknowledged later by Deci & Ryan (2000),

> [. . .] experiences of competence and autonomy are essential for intrinsic motivation and interest, but the needs for competence and autonomy do not provide a sufficient definition of intrinsic motivation. Intrinsically motivated activities are not necessarily directed at satisfaction of these needs per se, and behaviors that are directed at satisfaction of these needs are not necessarily intrinsically motivated (p. 233).

Second, and most importantly, thinking of intrinsic in self-based terms often encourages the misconception that social relationships are extrinsically motivated. More concretely, Ryan, Deci and colleagues (e.g., La Guardia, Ryan, Couchman & Deci, 2000) proposed that caring and nurturing relationships may be necessary to promote self-determination and competence, and consequently, intrinsic motivation. On the other hand, relationships can also be sources of external pressure, motivating individuals to act in order to avoid social punishments (e.g., social rejection) or to attain social rewards (e.g., social approval), hence, undermining intrinsic motivation (Deci, Koestner, & Ryan, 1999). The implication of this reasoning is that relationships have a peripheral role, either as facilitators or obstructers of intrinsic motivation, but are not intrinsically motivating. Often, they are thought of as extrinsically motivating in the sense that they often motivate people to engage in activities that they do not like.

On the other hand, adopting the activity-based definition of intrinsic motivation leads to different conclusions about the motivating role of social relationships. "Intrinsic" and "extrinsic" motivation are usually applied to activities like studying, painting, sports, etcetera, which do not, necessarily involve social relating. However, I approach social relationships as one kind of "activity", a joint-activity or relational pattern, the goal of which is shared with other people. Thus, I propose that RelComp is intrinsically motivating in the sense that it contains incentives of its own. In support of this assertion, studies in Chapter 4 showed that participants experienced more positive affect in complementary interactions than in non-complementary interactions, regardless of who completed the relational pattern and of the benefits and cost of RelComp to oneself.

Crucially, to the extent that RelComp involves mutually congruent and presupposing actions by two or more participants, the seeking of RelComp is rarely fully self-determined. Often, there are external pressures in the form of social obligations and commitments that motivate individuals to complement. The point here is that such commitments and obligations, insofar as they lead to RelComp, are also intrinsically motivating, regardless of self-determination.

At this point, a distinction must be made between two phenomenological levels of any activity performed in the context of social coordination: a concrete level and a symbolic-relational level. The concrete level is about the object or aspect of the interaction that requires coordination between individuals (e.g., writing a report, painting an apartment, changing dippers), and the objective actions, movements, tasks, that individuals perform in order to coordinate. The symbolic-relational level is about the subjective perception of the activity as part of a relational pattern (e.g., following the orders of the boss in an AR pattern; helping a friend or nursing one's baby in CS patterns), and has been neglected in the literature of intrinsic motivation. Each level has its own distinct motivational aspects. First, the goal of coordination is defined differently at the two levels. If one friend asks another to help him paint an apartment, the goal 'to paint the apartment' is different from the goal 'to help my friend or to painting together'. Second, each level offers different incentives for action. One may find the concrete activity fun or interesting in its own right (e.g., dancing), while at the same time find it aversive to perform that activity in particular relational contexts (e.g., at a work meeting, or in front of one's subordinates). One the other hand, one may dislike the concrete activity (e.g., washing the dishes, painting an apartment) but find it appealing to perform that activity on behalf of a relationship (e.g., inviting friends over for dinner; helping a friend remodeling his apartment). Similarly, one student may create an art painting with the goal of producing an interesting work, whereas the other student creates the art painting with the goal of pleasing her parents. Usually intrinsic motivation is used to describe motivation in the first case, because the student pursues the incentives that are intrinsic to the activity itself. However, if we distinguish the concrete level of the activity from the symbolic level of the relationship, we can say that there are intrinsic motivations in both cases. In the first case, the incentives are intrinsic to the activity, but are extrinsic to the relationship. In the second case, however, the incentives are intrinsic to the relational pattern of AR between the student and her parents, and, hence, extrinsic to the activity.

In sum, an activity may not be motivating in its concrete nature (the experience of painting) and still be motivating in its relational nature (helping a friend). Therefore, saying that RelComp is intrinsically motivating does not mean that people enjoy the concrete activities for their own sake. Instead, it means that RelComp is so attractive that people often commit themselves to perform unpleasant activities in order to fulfill the corresponding relational pattern.

The distinction between concrete and symbolic-relational levels has additional implications, namely that the incentives of activities "feel" differently than the incentives of relationships. Intrinsically motivating activities, that is, activities that are performed for their own sake, are usually experienced as "challenging", "interesting", "enjoyable" or "absorbing" (Csikszentmihalyi, Abuhamdeh & Nakamura, 2005). However, relational patterns are experienced with specific social relational emotions, not only associated to each specific RM—such has gratitude (Simão & Seibt, 2014, 2015), or Kama Muta (Sanskrit for "moved by love"; Seibt, Schubert, Zickfeld, & A. Fiske, 2017; Schubert, Zickfeld, Seibt, & A. Fiske, 2016) in CS relationships—but also associated to attending to one's duties and moral obligations, i.e., to "doing the right thing".

On the other hand, failure to achieve complementarity is usually associated with aversive emotional states, such as, embarrassment, guilt, shame, dishonor, anger, etc. (A. Fiske, 2002). This thesis presented evidence that complementary interactions are associated to positive affect, but further research is required to arrive at more fine-tuned descriptions of the emotions experienced in different RMs or kinds of RelComp.

5.3. Relational Complementarity vs. Social Norms

Only one study showed that participants primed with the RelComp made more effort in a task required by the experimenter. However, the priming task in this study differed from the other studies on one important respect. The concept of RelComp was introduced as something that people do when they relate. Thus, it is possible that RelComp was presented as something normative. The implication of this possibility is that the RelComp goal was not motivating for its intrinsic affective rewards, but instead, for corresponding to what people usually do.

This objection raises one crucial discussion. Most relational patterns are indeed normative within a given social-cultural context. They reflect knowledge about relationships that is shared by individuals within that context. In this sense most forms of RelComp are

normative in the descriptive and prescriptive sense, i.e., they correspond to what people most frequently do and should do (e.g., Cialdini, et al., 2006). Such confound hides two possible explanations. Either RelComp patterns are motivating insofar as they are normative, or certain norms are motivating because they describe and prescribe RelComp.

If the first possibility is true, then an additional explanation is needed for why norms are motivating. One common explanation is based on a motive to understand (Stevens & S. Fiske, 1995). In order to gain accuracy about the world and reduce uncertainty on ambiguous situations, people seek information about what others frequently do and adopt the most common behavior (e.g., Deutsch & Gerard, 1955; Festinger, 1954). Norms describing what others usually do are called descriptive norms (Cialdini, Reno, & Kallgren, 1990). A second explanation is based on a motive to gain social approval (Cialdini & Goldstein, 2004; Deutsch & Gerard, 1955). People seek approval by conforming to what others think they should do. Norms describing what others think is the appropriate behavior are called injunctive norms (Cialdini, Reno, & Kallgren, 1990). These explanations imply that there is nothing intrinsically motivating about social norms. Individuals follow norms to the extent that they need accuracy or approval.

The motivations behind descriptive and injunctive norms can be easily ruled out experimentally. If RelComp is a descriptive norm, then, individuals should perform the complementary behavior only when they believe the complementary action is what others usually do (Anderson & Dunning, 2014). On the other hand, seeking complementarity in the absence of information about the common action in that situation should demonstrate that RelComp is not a descriptive norm. Likewise, if RelComp is an injunctive norm, then, people should only pursue it in conditions were their action will be approved by others, i.e., in public (Anderson & Dunning, 2014). Hence, performing the complementary action in private, in a way that is unknown to the partner, should demonstrate that RelComp is not an injunctive norm. Supporting the idea that RelComp is not an injunctive norm, two studies have shown that people reciprocate favors regardless of whether the partner will find out that they reciprocated (Burger, et al., 2009; Whatley, Webster, Smith, & Rhodes, 1999). These results have, however, been interpreted with a third explanation claiming that norms can be internalized and motivate behavior even in the absence of social rewards.

The internalization hypothesis posits that people adopt social norms as internal standards and feel good about themselves when they correspond to those standards (Burger, Sanchez,

Imberi & Grande, 2009). The internalization explanation, however, is still problematic. First, it demands assumptions about what can be internalized and how. Since these assumptions are often not explicated, the internalization process remains a vague concept to describe things that people do in the absence of external demands. Second, to say that people are motivated to do something because it is a personal standard, is equivalent to saying that people do whatever they think is right. This is not only uninformative, but also tautological. A useful explanation has to describe what makes certain behaviors more likely to be adopted as standards, and how these behaviors differ from the rest. If any behavior can be adopted as a personal standard (e.g., brushing our teeth everyday) then an internalization hypothesis may elegantly offer post-hoc explanations for behavior, but is not a useful tool to make predictions.

The second possibility is that social norms are usually shared knowledge about patterns of RelComp. In other words, the behaviors that are most likely to become normative and internalized as personal standards are those that reflect particular forms of RelComp, i.e., particular implementations of RMs. This means that some social norms are motivating and adopted as standards because they correspond to patterns of RelComp, as is the case of the reciprocity norm (Burger, et al., 2009; Perugini, et al., 2003; Whatley, et al., 1999).

This hypothesis is consistent with the most common descriptions of universal norms that are presented by norm theorists (e.g., Stripada & Stich, 2006). Norms in favor of helping, reciprocity, sharing, and norms against theft, killing, and rape describe particular implementations of or transgressions to RMs. Sharing and reproducing knowledge about how to attain a desired goal-state in specific contexts is advantageous because it allows individuals to more efficiently combine their actions to attain it. This hypothesis is more informative than the alternative because it describes where norms and personal standards come from, which kinds of social patterns are likely to become normative and internalized, and it allows making predictions about which norms are likely to motivate behavior in specific situations.

5.4. Conditions for Pursuing an Activated Relational Pattern

In addition to being accessible and desirable, states of affairs also need to be attainable (Förster, Liberman, & Friedman, 2007; Golwitzer, 1990; Kruglanski, 1996; Tolman. 1955; Vroom, 1964) in order to be adopted as a goal. Attainability requires beliefs that (a) one is capable of performing the action necessary to produce the outcome (e.g., self-efficacy beliefs,

Bandura, 1977), and (b) that the performed behavior will lead to the desired outcome (Gollwitzer, 1990). Two hypotheses can be raised about conditions for attainability of a relational pattern.

First: Regarding beliefs about one's capacity, the agent is motivated to pursue an activated pattern to the extent that he perceives himself to have the social skill necessary to perform his part. For instance, leading a team, teaching, negotiating a sale, seducing a potential sex partner, dancing, cuddling, talking to strangers, all require a certain amount of socio-emotional skill that some people lack. People who believe they lack the skill to do their part will anticipate failure in proper implementation of the pattern, will have low attainment expectancies, and are less likely to feel motivated to pursue it (even if they wished they could do it).

Some individual traits, such as shyness, may interfere in the kinds of patterns that individuals more easily learn and feel comfortable with. A shy individual may never fully develop the skill to approach strangers in social events. Therefore, he will have low attainment expectancies for participating in such patterns.

Second: Regarding beliefs that one's own behavior will lead to the desired outcome, the agent is motivated to pursue an activated pattern to the extent that he expects (presupposes, whishes or hopes) that the partner will likely do his part . Low expectations that the other will do his part will reduce motivation to implement the pattern by doing one's part. For example, a man is less likely to buy a drink to a woman at a bar if he anticipates that she will not accept it, and a manager is less motivated to offer guidance to a collaborator who systematically neglects advice.

5.5. Concluding Remarks

Classical theories of social behavior assume that human beings are selfish, and that cooperation is motivating insofar as it allows individuals to fulfill their selfish needs. Relational Models Theory, on the other hand, states that people are inherently sociable, in the sense that they are motivated to constitute each of the four RMs for its own sake. The theory presented in this thesis builds on that statement. I conceptualized the psychological process of relating, and proposed that the constitution of the four RMs consist of participants pursuing Relational Complementarity. Furthermore, I proposed that Relational Complementarity is

intrinsically motivating, described how Relational Complementarity can be activated as a goal, and showed that it is affectively charged.

To be sure, individuals do have ulterior motives that often conflict and override the motivation for RelComp. The point is that despite such motives people do find satisfaction in acting together, in cooperating, and in fulfilling their obligations towards each other.

On the other hand, Relational Models Theory also hypothesized that particular motives were associated to specific RMs. Indeed, recent studies supported that hypothesis. Strasser (2013) showed not only that motives for affiliation and power predict individual's preferences for CS and AR relationships, respectively, but also that recognizing a CS or AR relationships arouses individuals' affiliation and power motives, respectively. However, I proposed and showed that this is not the whole story about motivations for constituting each RM. In addition to individual preferences for certain types of relationships, there is one motive that is ubiquitous in all RMs, and cultural implementations thereof. Furthermore, I showed how this unique motive satiates core social needs that have been shown to motivate social behavior in a way or another.

This thesis was an attempt to develop theory and methods that allow studying motivation for relating, and found initial support to the claim that social relationships are intrinsically motivating, and that human beings may, in fact, be inherently sociable creatures.

References

Aarts, H., & Dijksterhuis, A. (2000). Habits as knowledge structures: Automaticity in goal-directed behavior. *Journal of Personality and Social Psychology, 78*, 53-63.

Aarts, H., Gollwitzer, P., & Hassin, R. (2004). Goal contagion: Perceiving is for pursuing. *Journal of Personality and Social Psychology, 87*, 23–37.

Anscombe, G. E. M. (1963). *Intention* (2nd Ed.). London: Harvard University Press.

Atkinson, J. W., Heyns, R. W., & Veroff, J. (1954). The effects of experimental arousal of the affiliation motive on thematic apperception. *Journal of Abnormal and Social Psychology, 49*, 405–410.

Anderson, J. E., & Dunning, D. (2014). Behavioral norms: Variants and their identification. *Social and Personality Psychology Compass*, *8*(12), 721-738.

Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin, 112*, 461-48.

Balliet, D., & Van Lange, P. A. M. (2012). Trust, conflict, and cooperation: A meta-analysis. *Psychological Bulletin, 139*, 1090–1112. http://dx.doi.org/10.1037/a0030939

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191–215.

Bandura, A. (1997). *Self-efficacy: The Exercise of Control*. New York: Freeman.

Bargh, J. A. (1990). Auto - motives: Preconscious determinants of social interaction. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 93– 130). New York: Guilford Press.

Bargh, J. A., Chen, M., & Burrows, L. (1996). The automaticity of social behavior: Direct effects of trait concept and stereotype activation on action. *Journal of Personality and Social Psychology, 71*, 230-244.

Bargh, J. A., Gollwitzer, P. M., Lee - Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated will: Unconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology, 81*, 1004 – 1027.

Bargh, J. A., Gollwitzer, P. M., & Oettingen, G. (2010). In S. Fiske, D. T. Gilbert, & G. Lindzay (Eds.), *Handbook of social psychology* (5th ed., pp. 268-316). New York: Wiley.

Bargh, J. A., & Huang, J. Y. (2009). The selfish goal. In G. Moskowitz & H. Grant (Eds.), *The psychology of goals* (pp. 127– 150). New York: Guilford Press.

Bargh, J. A., Raymond, P., Pryor, J., & Strack, E (1995). Attractiveness of the underling: An automatic power-sex association and its consequences for sexual harassment and aggression. *Journal of Personality and Social Psychology, 68,* 768-781.

Barrenberg, J. L. (1987). The belief in personal control scale: a measure of god-mediated and exaggerated control. *Journal of Personality Assessment*, *51*(2), 194–206.

Bateson, G. (1958 (1936)). *Naven: A Survey of the Problems suggested by a Composite Picture of the Culture of a New Guinea Tribe drawn from Three Points of View*. Stanford University Press. ISBN 0-8047-0520-8.

Batson, C. D., Klein, T. R., Highberger, L., & Shaw, L. L. (1995). Immorality from empathy-induced altruism: When compassion and justice conflict. *Journal of Personality and Social Psychology, 68*(6), 1042–1054. doi:10.1037/0022-3514.68.6.1042

Batson, C. D., Ahmad, N., & Stocks, E. L. (2011). Four forms of prosocial motivation: egoism, altruism, collectivism, and principlism. In D. Dunning (Ed.), *Social Motivation* (103-126). New York: Psychology Press.

Baumeister, R. F., Brewer, L. E., Tice, D. M., & Twenge, J. M. (2007). Thwarting the need to belong: Understanding the interpersonal and inner effects of social exclusion. *Social and Personality Psychology Compass*, *1*(1), 506–520. http://doi.org/doi:10.1111/j.1751-9004.2007.00020.x

Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Twenge, J. M. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology*, *88*(4), 589–604. https://doi.org/10.1037/0022-3514.88.4.589

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

Baumeister, R.F., Twenge, J.M., & Nuss, C.K. (2002). Effects of social exclusion on cognitive processes: Anticipated aloneness reduces intelligent thought. *Journal of Personality and Social Psychology*, *83*, 817–827. http://dx.doi.org/10.1037/0022-3514.83.4.817

Beach, R. R. H., Whitaker, D. J., Jones, D. J., & Tesser, A. (2001). When does performance feedback prompt *complementarity* in romantic relationships? *Personal Relationships, 8*, 231-248.

Begen, F. M., & Turner-Cobb, J. M. (2015). Benefits of belonging: Experimental manipulation of social inclusion to enhance psychological and physiological health parameters. *Psychology & health*, *30*(5), 568-582. doi: 10.1080/08870446.2014.991734

Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, reciprocity, and social history. *Games and Economic Behavior, 10,* 122–142. doi:10.1006/game.1995.1027

Bermúdez, J. L. (2003). The domain of folk psychology. *Royal Institute of Philosophy Supplement, 53,* 25–48.

Berne, E. (1964). *Games people play.* New York: Grove Press.

Blau, P. M. (1964). *Exchange and power in social life.* New York: Wiley.

Bohl, V. (2015). We read minds to shape relationships. *Philosophical Psychology*, *28*(5), 674–694. http://doi.org/10.1080/09515089.2014.893607

Bolton, G. E., Katok, E., & Ockenfels, A. (2004). How effective are electronic reputation mechanisms? An experimental investigation. *Management Science, 50,* 1587–1602. http://dx.doi.org/10.1287/mnsc.1030.0199

Bourgeois, P., & Hess, U. (2008). The impact of social context on mimicry. *Biological Psychology*, *77*(3), 343–352. http://doi.org/10.1016/j.biopsycho.2007.11.008

Bratman, M. E. (2009). Modest sociality and the distinctiveness of intention. *Philosophical Studies*, *144*(1), 149–165. doi:10.1007/s11098-009-9375-9

Bratman, M. (1987). *Intentions, Plans, and Practical Reasoning*. Cambridge MA: Harvard University Press.

Bratman, M. (1992). Shared cooperative activity. *The Philosophical Review*, *101*(2), 327–341.

Braver, T. S., Krug, M. K., Chiew, K. S., Kool, W., Clement, N. J., Adcock, R. A., et al. (2014). Mechanisms of motivation–cognition interaction: Challenges and opportunities. *Cognitive, Affective, & Behavioral Neuroscience*, *14*(2), 443–472. doi:10.3758/s13415-014-0300-0

Brehm, J. W. (1966). *A theory of psychological reactance*. Academic Press.

Brennan, S. E., Chen, X., Dickinson, C., Neider, M., & Zelinsky, G. (2007). Coordinating cognition: The costs and benefits of shared gaze during collaborative search. *Cognition, 106*, 1465–1477.

Burger, J. M., & Cooper, H. M. (1979). Desirability of control. *Motivation and Emotion, 3*(4), 381–393.

Buss, A. H. (1983). Social rewards and personality. *Journal of Personality and Social Psychology, 44*(3), 553–563. http://doi.org/10.1037//0022-3514.44.3.553

Butterfill, S. (2012). Joint action and development. *Philosophical Quarterly*, *62*(246), 23–47. http://doi.org/10.1111/j.1467-9213.2011.00005.x

Butterfill, S. a., & Sebanz, N. (2011). Editorial: Joint Action: What Is Shared? *Review of Philosophy and Psychology*, *2*(2), 137–146. doi:10.1007/s13164-011-0062-3

Carpenter, M., Tomasello, M. & Striano, T. (2005) Role reversal imitation and language in typically developing infants and children with autism. *Infancy 8*, 253–78.

Carruthers, P., & Smith, P. K. (1996). Introduction. In P. Carruthers & P. K. Smith (Eds.), Theories of theories of mind (pp. 1–8). Cambridge: Cambridge University Press.

Chartrand, T. (2007). *Mystery moods and perplexing performance: consequences of succeeding and failing at a nonconscious goal*. Working Paper, Duke University.

Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception-behavior link and social interaction. *Journal of Personality & Social Psychology, 76*(6), 893–910.

Chartrand, T. L., & Bargh, J. A. (1996). Automatic activation of social information processing goals: Unconscious priming reproduces effects of explicit conscious instructions. *Journal of Personality and Social Psychology, 71*, 464 – 478.

Chartrand, T. L., & Bargh, J. A. (2002). Unconscious motivations: Their activation, operation, and consequences. In A. Tesser, D. Stapel, & J. Wood (Eds.), *Self and motivation: Emerging psychological perspectives* (pp. 13– 41). Washington, DC: American Psychological Association Press.

Chen, S., Lee-Chai, A. Y., & Bargh, J. A. (2001). Relationship orientation as a moderator of the effects of social power. *Journal of Personality and Social Psychology, 80*, 173-187.

Cialdini, R. B., Darby, B. L., & Vincent, J. E. (1973). Transgression and altruism: A case for hedonism. *Journal of Experimental Social Psychology, 9*, 502–516.

Cialdini, R. B., Demaine, L. J., Sagarin, B. J., Barrett, D. W., Rhoads, K., & Winter, P. L. (2006). Managing social norms for persuasive impact. *Social Influence, 1*(1), 3–15. http://doi.org/10.1080/15534510500181459

Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: compliance and conformity. *Annual review of psychology*, *55*(1974), 591–621.

Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct. *Journal of Personality and Social Psychology*, *58*(6), 1015-1026.

Cialdini, R. B., & Trost, M. R. (1998). Social Influence: social norms, conformity and compliance. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of Social Psychology* (4th ed., pp. 152–92). Boston: McGraw-Hill.

Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, *37*(1), 12–24.

Connell, J. P. (1985). A new multidimensional measure of children's perceptions of control. *Child Development, 56*, 1018–1041. doi:10.2307/1130113

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, *24*(4), 349–54. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/13813058

Csikszentmihalyi, M., Abuhamdeh, S., & Nakamura, J. (2005). Flow. *In* A. J. Elliot & C. S. Dweck (Eds.), *Handbook of Competence and Motivation* (pp. 598-608). New York: The Guilford Press.

Csikszentmihalyi, M., & Nakamura, J. (1989). The dynamics of intrinsic motivation: A study of adolescents. In R. Ames & C. Ames (Eds.), Research on motivation in education: Goals and cognitions (pp. 45-71). New York: Academic Press.

Custers, R., & Aarts, H. (2005). Beyond priming effects: the role of positive affect and discrepancies in implicit processes of motivation and goal pursuit. *European Review of Social Psychology, 16*, 257-300.

Custers, R., & Aarts, H. (2007). Goal-discrepant situations prime goal-directed actions if goals are temporally or chronically accessible. *Personality and Psychology Bulletin, 33*, 623-633.

Davidson, D. 1980. Essays on actions and events. Oxford: Oxford University Press.

Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin, 125,* 627–668.

Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 39–80). New York: Academic Press.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227-268.

Deutsch M., & Gerard, H. B. (1955). A study of normative and informative social influences upon individual judgment. *Journal of Abnormal Social Psychology*, *51*, 629–36.

DeWall, C. N., & Bushman, B. J. (2011). Social Acceptance and Rejection. *Current Directions in Psychological Science*, *20*(4), 256–260. https://doi.org/10.1177/0963721411417545

DeWall, C. N., Maner, J. K., & Rouby, D. A. (2009). Social exclusion and early-stage interpersonal perception: selective attention to signs of acceptance. *Journal of Personality and Social Psychology*, *96*(4), 729–41. https://doi.org/10.1037/a0014634

DeWall, C. N., & Richman, S. B. (2011). Social Exclusion and the Desire to Reconnect. *Social and Personality Psychology Compass*, *5*(11), 919–932. http://doi.org/10.1111/j.1751-9004.2011.00383.x

Dijksterhuis, A., Chartrand, T. L., & Aarts, H. (2007). Effects of priming and perception on social behavior and goal pursuit. In J. A. Bargh (Ed.), *Social psychology and the unconscious: The automaticity of higher mental processes* (pp. 51–132). Philadelphia: Psychology Press.

Dollard, J., Doob, L. W., Miller, N. E., Mowrer, O. H., & Sears, R. (1939). *Frustration and Aggression*. New Haven: Yale University Press.

Dunning, D., Anderson, J. E., Schlösser, T., Ehlebracht, D., & Fetchenhauer, D. (2014). Trust at Zero Acquaintance: More a Matter of Respect Than Expectation of Reward. *Journal of Personality and Social Psychology, 107*(1), 122–41. http://doi.org/10.1037/a0036673

Dunning, D., & Fletchenhauer, (2011). Understanding the psychology of trust. In D. Dunning (Ed.), *Social Motivation* (147-171). New York: Psychology Press.

Durkheim, E. (1933). *The division of labour in society* (G. Simpson, Trans.). New York: Free Press. (Original work published 1893)

Eisenberger, N.I., Lieberman, M.D., & Williams, K.D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science*, *302*, 290–292. DOI: 10.1126/science.1089134

Elliot, A. J., & Covington, M. V. (2001). Approach and avoidance motivation. *Educational Psychology Review*, *12*, 73–92.

Elliot, A. J., & Fryer, J. W. (2008). The goal construct in psychology. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of Motivation Science* (235-250). New York: The Gilford Press.

Etzioni, A. (1975). *A comparative analysis of complex organizations: On power, involvement, and their correlates*. New York: Free Press.

Everett, J. A. C., Pizarro, D. A., & Crockett, M. J. (2016). Inference of trustworthiness from intuitive moral judgments. *Journal of Experimental Psychology: General, 145*(6), 772–787. https://doi.org/10.1037/xge0000165

Fennis, B. M., & Aarts, H. (2012). Revisiting the agentic shift: Weakening personal control increases susceptibility to social influence. *European Journal of Social Psychology*, *42*(7), 824–831.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117–140.

Festinger, L. (1957). *A Theory of Cognitive Dissonance.* Stanford, CA: Stanford University Press.

Finkel, E. J., Campbell, W. K., Brunell, A. B., Dalton, A. N., Scarbeck, S. J., & Chartrand, T. L. (2006). High-maintenance interaction: inefficient social coordination impairs self-regulation. *Journal of Personality and Social Psychology*, *91*(3), 456–75. doi:10.1037/0022-3514.91.3.456

Fitzsimons, G. M., & Bargh, J. A. (2003). Thinking of you: Unconscious pursuit of interpersonal goals associated with relationship partners. *Journal of Personality and Social Psychology, 84*, 148 – 164.

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behaviour: An introduction to theory and research. Reading, MA: Addison-Wesley.

Fishbach, A., & Ferguson, M. J. (2007). The goal construct in social psychology. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (pp. 490 – 515). New York: Guilford Press.

Fiske, A. P. 1990. Relativity within Moose "Mossi" culture: Four incommensurable models for social relationships. *Ethos* 18:180-204.

Fiske, A. P. (1991). *Structures of social life: The four elementary forms of human relations.* New York: Free Press.

Fiske, A. P. (1992). The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review,* 99, 689-723.

Fiske, A. P. (1993). Social errors if four cultures: evidence about universal forms of social relations. *Journal of Cross-Cultural Psychology, 24*, 463-494.

Fiske, A. P. (1995). Social schemata for remembering people: Relationships and person attributes in free recall of acquaintances. *Journal of Quantitative Anthropology*, *5*, 305-324.

Fiske, A. P. (2000). Complementarity theory: Why human social capacities evolved to require cultural complements. *Personality and Social Psychology Review, 4*, 76-94.

Fiske, A. P. (2004a). Relational models theory 2.0. In N. Haslam (Ed.), *Relational Models Theory: a contemporary overview* (pp. 3-25). New Jersey: Lawrence Erlbaum Associates, Publishers.

Fiske, A. P. (2004b). Four modes of constituting relationships: consubstantial assimilation; space, magnitude, time, and force; concrete procedures; abstract symbolism. In N. Haslam (Ed.), *Relational Models Theory: a contemporary overview* (pp. 61-146). New Jersey: Lawrence Erlbaum Associates, Publishers.

Fiske, A. P., & Haslam, N. (1996). Social Cognition Is Thinking About Relationships. *Current Directions in Psychological Science*, *5*(5), 143–148. http://doi.org/10.1111/1467-8721.ep11512349

Fiske, A. P., & Haslam, N. (1997). The structure of social substitutions: a relational models theory. *European Journal of Social Psychology*, *27*, 725–729.

Fiske, A. P., Haslam, N., & Fiske, S. T. (1991). Confusing one person with another: what errors reveal about elementary forms of social relations. *Journal of Personality and Social Psychology, 60*(5), 656–674.

Fiske, A. P., & Rai, T. S. (2015). *Virtuous violence: hurting and killing to create, sustain, end, and honor social relationships*.

Fiske, A. P., & Schubert, L. (2012). How to relate to people: The extraterrestrial's guide to Homo sapiens. In O. Gillath, G. Adams, & A. Kunkel (Eds.), *Relationship Science: Integrating Evolutionary, Neuroscience, and Sociocultural Approaches., Decade of Behavior 2000–2010* (pp. 169–195). Washington, DC US: American Psychological Association.

Fiske, S. T. (1993). Controlling other people: The impact of power on stereotyping. *American Psychologist*, 48: 621- 628.

Fiske, S. T. (2004). *Social beings: A core motives approach to social psychology.* New York: Wiley.

Fiske, S. T. (2008). Core social motivations, a historical perspective: Views from the couch, consciousness, classroom, computers, and collectives. In W. Gardner & J.Y. Shah (Eds.), *Handbook of Motivation Science* (pp. 3–22). New York: Guilford.

Fiske, S. T., & Dépret, E. (1996). Control, interdependence and power: understanding social cognition in its social context. *European Review of Social Psychology, 7*(1), 31–61. http://doi.org/10.1080/14792779443000094

Fitzsimons, G. M., & Bargh, J. a. (2003). Thinking of you: Nonconscious pursuit of interpersonal goals associated with relationship partners. *Journal of Personality and Social Psychology, 84*(1), 148–164. http://doi.org/10.1037/0022-3514.84.1.148

Fletcher, G. J. O., Simpson, J. A., Thomas, G., & Giles, L. (1999). Ideals in intimate relationships. *Journal of Personality and Social Psychology, 76*, 72-89.

Foddy, M., Platow, M. J., & Yamagishi, T. (2009). Group-based trust in strangers: The role of stereotypes and expectations: Research Report. *Psychological Science*, *20*(4), 419–422. https://doi.org/10.1111/j.1467-9280.2009.02312.x

Förster, J., Liberman, N., & Friedman, R. S. (2007). Seven principles of goal activation: A systematic approach to distinguishing goal priming from priming of non-goal constructs. *Personality and Social Psychology Review, 11,* 211–233. http://dx.doi.org/10.1177/1088868307303029

Fraser, C. O. (2000). The social goals of excuses: self-serving attributions or politeness strategies. *Journal of Applied Social Psychology*, *30*(3), 599-611.

French, E. G. (1955). Some characteristics of achievement motivation. *Journal of Experimental Psychology, 50,* 232-236.

French, J. R. P.. & Raven, B. H. (1959). The bases of social power. In D. Cartwright (Ed.), *Studies* of *Social Power* (pp. 118-149). Ann Arbor, MI: Institute of Social Research.

Freud, S. (1953). On narcissism: An introduction. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 14, pp. 67–102). London: Hogarth Press. (Original work published 1914).

Gable, S. L., & Strachman, A. (2008). Approaching social rewards and avoiding social punishments. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of Motivation Science* (561-575). The Gilford Press: New York, London.

Galinsky, A. D., Gruenfeld, D. H., & Magee, J. C. (2003). From power to action. *Journal of Personality and Social Psychology*, *85*(3), 453–66. https://doi.org/10.1037/0022-3514.85.3.453

Geen, R. G. (1968). Effects of frustration, attack, and prior training in aggressiveness upon aggressive behavior. *Journal of Personality and Social Psychology, 9,* 316-321.

Gibson, J. J. (1977). The theory of affordances. In R. Shaw & J. Bransford (Eds.), *Perceiving, acting, and knowing: Toward an ecological psychology* (pp. 67–82). Hillsdale, NJ: Erlbaum.

Gilbert, M. (2009). Shared intention and personal intentions. *Philosophical Studies*, *144*(1), 167–187. http://doi.org/10.1007/s11098-009-9372-z

Glanville, J. L., & Paxton, P. (2007). How do We Learn to Trust? A Confirmatory Tetrad Analysis of the Sources of Generalized Trust. *Social Psychology Quarterly*, *70*(3), 230–242. https://doi.org/10.1177/019027250707000303

Goldman, A. I. (2012). Theory of mind. In E. Margolis, R. Samuels, & S. Stich (Eds.), *The Oxford Handbook of Philosophy and Cognitive Science* (pp. 402 – 423). New York: Oxford University Press.

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), The handbook of motivation and cognition: Foundations of social behavior (Vol. 2, pp. 53–92). New York, NY: Guilford Press

Gopnik, A. and Wellman, H. (1992). Why the child's theory of mind really is a theory. *Mind and Language, 7*: 145-171.

Gordon, R. M. (1986). Folk psychology as simulation. Mind and Language 1: 158-171.

Hale, C. J., Hannum, J. W., & Espelage, D. L. (2005). Social support and physical health: The importance of belonging. *Journal of American College Health*, *53*(6), 276-284. DOI: 10.3200/JACH.53.6.276-284

Hagerty, B. M., & Patusky, K. (1995). Developing a measure of sense of belonging. *Nursing Research, 44*, 9–13.

Haslam, N. (1994a). Mental representation of social relationships: dimensions, laws, or categories? *Journal of Personality and Social Psychology, 67*(4), 575–84.

Haslam, N. (1994b). Categories of social relationships. *Cognition, 53*, 59–90.

Haslam, N., & Fiske, A. P. (1992). Implicit relationship prototypes: investigating five theories of the elementary cognitive forms of social relationships. *Journal of Experimental Social Psychology*, *28*, 441-474.

Haslam, N., & Fiske, A. P. (1999). Relational models theory: a confirmatory factor analysis. Personal Relationships, 6, 241–250.Haslam, N. (2004). A relational approach to the personality disorders. In N. Haslam (Ed.), *Relational Models Theory: a contemporary overview* (pp. 335-360). New Jersey: Lawrence Erlbaum Associates, Publishers.

Haslam, N., & Fiske, A. P. (2004). Social expertise: theory of mind or theory of relationships? In N. Haslam (Ed.), *Relational Models Theory: a contemporary overview* (pp. 147-163). New Jersey: Lawrence Erlbaum Associates, Publishers.

Heck, R. H., Thomas, S. T., & Tabata, L. N. (2014). *Multilevel and longitudinal modeling with IBM SPSS* (2nd Ed.). New York: Routledge.

Heckhausen, J. (2000). Evolutionary Perspectives on Human Motivation. *American Behavioral Scientist, 43*(6), 1015–1029. http://doi.org/10.1177/00027640021955739

Heckhausen, J., & Schulz, R. (1995). A life-span theory of control. *Psychological Review, 102*(2), 284–304. http://doi.org/10.1037/0033-295X.102.2.284

Heider, F. (1946). "Attitudes and Cognitive Organization". Journal of Psychology 21: 107-112.

Heider, F. (1958).*The psychology of interpersonal relations*. New York: Wiley.

Hergenhahn, B. R. (2005). *An introduction to the history of psychology* (5th ed.). Belmont: Thomson Wadsworth.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94,* 319–340. http://dx.doi.org/10.1037/0033-295X.94.3.319.

Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 30, pp. 1–46). San Diego, CA: Academic Press.

Hill, C. a. (1987). Affiliation motivation: people who need people ... but in different ways. *Journal of Personality and Social Psychology*, *52*(5), 1008–1018. http://doi.org/10.1037/0022-3514.52.5.1008

Hinde, R. A. (1976). Interactions, relationships and social structure. *Man, 11,* 1–17. Doi: 10.2307/2800384

Hogg, M. A. (2000). Subjective Uncertainty Reduction through Self-categorization: A Motivational Theory of Social Identity Processes. *European Review of Social Psychology*, *11*(1), 223–255. http://doi.org/10.1080/14792772043000040

Holmes, J. G., & Rempel, J. K. (1989). Trust in close relationships. In C. Hendrick (Ed.), *Close relationships* (pp. 187–220). Thousand Oaks, CA: Sage.

Hommel, B., Colzato, L. S., & Van Den Wildenberg, W. P. M. (2009). How social are task representations? *Psychological Science*, *20*(7), 794–798. http://doi.org/10.1111/j.1467-9280.2009.02367.x

Hox, J. J. (2010). *Multilevel analysis: technique and applications* (2nd Ed.). New York: Routledge.

Iacoboni, M., Molnar-Szakacs, I., Gallese, V., Buccino, G., Mazziotta, J. C. and Rizzolatti, G. (2005). Grasping the intentions of others with one's own mirror neuron system. *PLoS Biology, 3*, 529-535.

Jackendoff, R. (1991, June). *Is there a faculty of social cognition? Paper* presented to the Society for Philosophy and Psychology, San Francisco.

James, W. 1890 *The principles of psychology*. New York, NY: Holt.

Jones, E. E., & Thibaut, J. W. (1958). Interaction goals as bases of inference in interpersonal perception. In R. Taguiri & L. Petrullo (Eds.), *Person perception and interpersonal behavior* (pp. 151–178). Stanford, CA: Stanford University Press.

Kaufmann, L., & Clément, F. (2014). Wired for Society: Cognizing Pathways to Society and Culture. *Topoi,* 33, 459-475. doi.org/10.1007/s11245-014-9236-9

Keller, P. E., Knoblich, G., & Repp, B. H. (2007). Pianists duet better when they play with themselves: On the possible role of action simulation in synchronization. Consciousness and Cognition, 16(1), 102–111.

Kelley, H. H., Holmes, J. G., Kerr, N. L., Reis, H. T., Rusbult, C. E., & Van Lange, P. A. M. (2003). *An atlas of interpersonal situations*. Cambridge, England: Cambridge University Press.

Kelley, H. H., & Thibaut, J. W. (1978). *Interpersonal relations: A theory of interdependence*. New York: Wiley.

Kiesler, D. J. (1983). The 1982 interpersonal circle: a taxonomy for complementarity in human transactions. *Psychological Review*, *90*(July), 185–214.

Kirschner, S., & Tomasello, M. (2009). Joint drumming: Social context facilitates synchronization in preschool children. *Journal of Experimental Child Psychology, 102*(3), 299–314.

Klapwijk, A., & Van Lange, P. a M. (2009). Promoting cooperation and trust in "noisy" situations: the power of generosity. *Journal of Personality and Social Psychology*, *96*(1), 83–103. https://doi.org/10.1037/a0012823

Knoblich, G., & Flach, R. (2001). Predicting the effects of actions: Interactions of perception and action. Psychological Science, 12, 467–472.

Knoblich, G., Butterfill, S., & Sebanz, N. (2011). Psychological research on joint action : theory and data. In B. Ross (Ed.), *The Psychology of Learning and Motivation,* Vol. 54 (pp. 59-101). Burlington: Academic Press, ISBN: 978-0-12-385527-5

Koffka, K. (1935/1999). *Principles of Gestalt Psychology*. Oxon: Routledge.

Köhler, W. (1969). The task of Gestalt Psychology. Princeton, NJ: Princenton Universoty Press.

Kutz, C. (2000). Acting together. *Philosophy and Phenomenological Research, 61*(1), 1–31.

Kramer, R.M., & Carnevale, P.J. (2001). Trust and intergroup negotiation. In R. Brown & S. Gaertner (Eds.), *Blackwell handbook of social psychology: Intergroup processes*, 431–450. Malden, MA: Blackwell Publishers.

Kruglanski, A. W. (1996). Goals as knowledge structures. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 599–618). New York: Guilford Press.

Kruglanski, A. W., Chernikova, M., Rosenzweig, E., & Köpetz, C. (2014). On motivational readiness. *Psychological Review, 121*, 367–388. http:// dx.doi.org/10.1037/a0037013.

Kruglanski, A. W., Jasko, K., Chernikova, M., Milyavsky, M., Babush, M., Baldner, C., & Pierro, A. (2015). The rocky road from attitudes to behaviors: Charting the goal systemic course of actions. *Psychological review*, *122*(4), 598. http://dx.doi.org/10.1037/a0039541

Khuri, F. I. (1968). The etiquette of bargaining in the Middle East. *American Anthropologist, 60*(4), 698-706.

Lang, J. W. B., & Fries, S. (2006). A Revised 10-Item Version of the Achievement Motives Scale. *European Journal of Psychological Assessment*, *22*(3), 216–224. doi:10.1027/1015-5759.22.3.216

Larsen, J., Norris, C., McGraw, a P., Hawkley, L., & Cacioppo, J. (2008). The evaluative space grid: A single-item measure of positivity and negativity. *Cognition & Emotion, 23*(3), 453–480. doi:10.1080/02699930801994054

Larsen, J. T., Hershfield, H. E., Stastny, B. J., & Hester, N. (2017). On the relationship between positive and negative affect: Their correlation and their co-occurrence. *Emotion*, *17*(2), 323. Doi: 10.1037/emo0000231

Lau, R., & Ware, J. (1981). Refinements in the measurement of health-specific locus-of-control beliefs. *Medical Care*, 19(11), 1147–1158.

Lawrence, J. W., Carver, C. S., & Scheier, M. F. (2002). Velocity toward goal attainment in immediate experience as a determinant of affect. *Journal of Applied Social Psychology, 32,* 788–802.

Leary, M. R. (1983). A brief version of the Fear of Negative Evaluation Scale. *Personality and Social Psychology Bulletin, 9*, 371-376.

Leary, M. R. (2001). Toward a conceptualization of interpersonal rejection. In M. Leary (Ed.), *Interpersonal Rejection* (3-20). New York: Oxford University Press.

Leary, M. R. (2010). Affiliation, acceptance, and belonging. In S.T. Fiske, D.T. Gilbert & G. Lindzey (Eds.), *Handbook of Social Psychology* (5th Ed., Vol. 2, pp. 864–897). New York, NY: Wiley.

Leary, M. R., & Allen, A. B. (2011). Belonging motivation: establishing, maintaining, and repairing relational value. In D. Dunning (Ed.), *Social Motivation* (37-55). New York: Psychology Press. Doi: 10.4324/9780203833995

Leary, M. R., Kelly, K. M., Cottrell, C. a, & Schreindorfer, L. S. (2013). Construct validity of the need to belong scale: mapping the nomological network. *Journal of Personality Assessment*, *95*(6), 610–24. http://doi.org/10.1080/00223891.2013.819511

Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of personality and social psychology*, *68*(3), 518. Doi: 10.1037/0022-3514.68.3.518

Lee, J. J., & Pinker, S. (2010). Rationales for indirect speech: the theory of the strategic speaker. Psychological Review, 117(3), 785–807. Doi:10.1037/a0019688

Lee, R. M., & Robbins, S. B. (1995). Measuring belongingness: The Social Connectedness Scale and the Social Assurance Scale. *Journal of Counseling Psychology, 42*, 232–241.

Levenson, H. (1973). Multidimensional locus of control in psychiatric patients. *Journal of Consulting and Clinical Psychology*, *41*(3), 397–404. doi:10.1037/h0035357

Lewicki, R. J., McAllister, D. J., & Bies, R. J. (1998). Trust and Distrust: New Relationships and Realities. *Academy of Management Review, 23*, 438–458

Lewin, K. (1951). *Field Theory in social Science*. NY: Harper & Row.

Liebal, K., Behne, T., Carpenter, M., & Tomasello, M. (2009). Infants use shared experience to interpret pointing gestures. *Developmental Science, 12*, 264–271.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal-setting and task performance*. Upper Saddle River, NJ: Prentice-Hall.

Malhotra, D. (2004). Trust and reciprocity decisions: The differing perspectives of trustors and trusted parties. *Organizational Behavior and Human Decision Processes, 94*, 61-73. doi: 10.1016/j.obhdp.2004.03.001

Malone, G. P., Pillow, D. R., & Osman, A. (2012). The General Belongingness Scale (GBS): Assessing achieved belongingness. *Personality and Individual Differences, 52*(3), 311–316.

Maner, J. K., DeWall, C. N., Baumeister, R. F., & Schaller, M. (2007). Does social exclusion motivate interpersonal reconnection? Resolving the" porcupine problem.". *Journal of Personality and Social Psychology, 92*(1), 42.

Marcus-Newhall, A., Pedersen, W. C., Carlson, M., & Miller, N. (2000). Displaced aggression is alive and well: a meta-analytic review. *Journal of Personality and Social Psychology, 78*(4), 670.

Martin, L. L., & Tesser, A. (2009). Five markers of motivated behavior. In G. B. Moskowitz & H. Grant (Eds.), *The psychology of goals*, 257-276. New York: The Guilford Press.

Mascaro, O., & Csibra, G. (2012). Representation of stable social dominance relations by human infants. *Proceedings of the National Academy of Sciences, 109*(18), 6862-6867.

Maslow, A. H. (1943). A theory of human motivation. *Psychological review, 50*(4), 370 – 396. http://dx.doi.org/10.1037/h0054346

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *The Academy of Management Review, 20,* 709–734.

McAdams, D. P. (1980). A thematic coding system for the intimacy motive. *Journal of Research in Personality, 14*(4), 413-432.

McAdams, D. P., & Constantian, C. A. (1983). Intimacy and affiliation motives in daily living: An experience sampling analysis. *Journal of Personality and Social Psychology, 45*, 851-861.

McClelland, D. C. (1975). *Power: The inner experience*. New York: Irvington Publishers.

McClelland, D. C. (1987). *Human motivation*. New York: Cambridge University Press.

McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ? *Psychological Review, 96*(4), 690–702. http://doi.org/10.1037//0033-295X.96.4.690

McDougall, W. (1908). *An introduction to social psychology*. London: Methuen.

Mele, A. R. (2009). *Effective Intentions: The Power of Conscious Will*. New York: Oxford University Press.

Mellor, D., Stokes, M., Firth, L., Hayashi, Y., & Cummins, R. (2008). Need for belonging, relationship satisfaction, loneliness, and life satisfaction. *Personality and Individual Differences*, *45*(3), 213–218. https://doi.org/10.1016/j.paid.2008.03.020

Mirels, H. L. (1970). Dimensions of internal versus external control. *Journal Of Consulting And Clinical Psychology*, *34*(2), 226–228. doi:10.1037/h0029005

Morton, A. (1996). Folk psychology is not a predictive device. *Mind, 105*(417), 119–137.

Murray, H. A. (1938). *Explorations in personality.* New York: Oxford University Press.

Murray, S. L., Pinkus, R., Holmes, J. G., Harris, B., Gomillion, S., Aloni, M., . . . Leder, S. (2011). Signaling when (and when not) to be cautious and self-protective: Impulsive and reflective trust in close relationships. *Journal of Personality and Social Psychology*, *101*, 485–502. doi:10.1037/a0023233

Néda, Z., Ravasz, E., Brechte, Y., Vicsek, T., & Barabasi, A.-L. (2000). The sound of many hands clapping. *Nature*, 403, 849–850.

Nichols, A. L. & Webster, G. D. (2013). The single-item need to belong scale. *Personality and Individual Differences, 55*(2), 189-92. doi: 10.1016/j.paid.2013.02.018

Oakes, P. J., & Turner, C. (1980). Social categorization and intergroup behaviour: does minimal intergroup discrimination make social identity more positive? *European Journal of Social Psychology*, *10*, 295–301.

Oettingen, G., Pak, H., & Schnetter, K. (2001). Self-regulation of goal setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology, 80,* 736–753. http://dx.doi.org/10.1037/0022-3514.80.5.736

Over, H. & Carpenter, M. (2009). Eighteen-month-old infants show increased helping following priming with affiliation. *Psychological Science, 20,* 1189-1193.

Pacherie, E. (2006). Towards a dynamic theory of intentions. In S. Pockett, W.P. Banks & S. Gallagher (Eds.). *Does Consciousness Cause Behavior? An Investigation of the Nature of Volition* (pp.145-167). Massachusetts: MIT Press.

Pacherie, E. (2008). The phenomenology of action: a conceptual framework. *Cognition, 107* (1), 179-217.

Pacherie, E. (2011). Framing Joint Action. *Review of Philosophy and Psychology*, *2*(2), 173–192. doi:10.1007/s13164-011-0052-5

Pallant, J. F. (2000). Development and validation of a scale to measure perceived control of internal states. *Journal of Personality Assessment, 75*(2), 308–337. doi:10.1207/S15327752JPA7502

Park, J. H., & Buunk, A. P. (2011). Interpersonal threats and automatic motives. In D. Dunning (Ed.), *Social Motivation* (11-35). New York: Psychology Press.

Patten, R. L., & White, L. A. (1977). Independent effects of achievement motivation and overt attribution on achievement behavior. *Motivation and Emotion, 1,* 39-59.

Paulhus, D. (1983). Sphere-specific measures of perceived control. *Journal of Personality and Social Psychology*, *44*(6), 1253–1265. http://doi.org/10.1037//0022-3514.44.6.1253

Perugini, M., Gallucci, M., Presaghi, F., & Ercolani, A. P. (2003). The personal norm of reciprocity. *European Journal of Personality*, *17*, 251–283.

Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology, 48*, 85-112.

Pezzulo, G. (2011). Shared Representations as Coordination Tools for Interaction. *Review of Philosophy and Psychology*, *2*(2), 303–333. doi:10.1007/s13164-011-0060-5

Piaget, J. (1965). *The moral judgment of the child* (M. Gabain, Trans.). New York: Free Press. (Original work published 1932)

Pilkington, C.J., Tesser, A., & Stephens, D. (1991). Complementarity in romantic relationships: a self-evaluation maintenance perspective. *Journal of Social and Personal Relationships, 8*, 481-504.

Pittman, T. S. (1998). Motivation. In D. T. Gilbert, S. T. Fiske, G. Lindzey (Eds.), *The Handbook of Social Psychology* (pp. 549-590). New York: McGraw-Hill.

Pittman, T. S., & Zeigler, K. R. (2007). Basic human needs. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social Psychology: Handbook of Basic Principles* (pp. 473-489). New York: The Gilford Press.

Prinz, W. 1997 Perception and action planning. *European Journal of Cognitive Psychology, 9*, 129–154. doi:10.1080/713752551

Polanyi, K. (1957). *The great transformation: The political and economic origins of our time*. New York: Rinehart. (Original work published 1944)

Poulin, M. J., & Haase, C. M. (2015). Growing to trust: evidence that trust increases and sustains well-being across the life-span. *Social Psychological and Personality Science, 6*(6), 614-621.

Pyszczynski, T., Greenberg, J., & Solomon, S. (1997). Why do we need what we need? a terror management theory perspective on the roots of human social motivation. *Psychological Inquiry, 8*(1), 1–20.

Quevedo, R. M., & Abella, M. C. (2014). Does locus of control influence subjective and psychological well-being?. *Personality and Individual Differences, 60*, S55. https://doi.org/10.1016/j.paid.2013.07.231

Rai, T., & Fiske, A. P. (2011). Moral psychology is relationship regulation: moral motives for unity, hierarchy, equality, and proportionality. *Psychological Review, 118*, 57-75

Ramnani, N., & Miall, R. C. (2004). A system in the human brain for predicting the actions of others. *Nature Neuroscience, 7*(1), 85–90. doi:10.1038/nn1168

Rheinberg, F. (2008). Intrinsic Motivation and Flow. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and Action* (pp. 323-348). New York: Cambridge University Press.

Richardson, M. J., Marsh, K. L., Isenhower, R., Goodman, J., & Schmidt, R. C. (2007). Rocking together: Dynamics of intentional and unintentional interpersonal coordination. *Human Movement Science, 26*, 867–891.

Ricoeur, P. (1967). *The symbolism of evil* (E. Buchanan, Trans.). Boston: Beacon Press.

Richman, L. S., & Leary, M. R. (2009). Reactions to discrimination, stigmatization, ostracism, and other forms of interpersonal rejection: a multimotive model. *Psychological Review, 116*(2), 365–383. http://doi.org/10.1037/a0015250

Rizzolatti, G., & Craighero, L. (2004). The mirror-neuron system. *Annual Review of Neuroscience, 27*(1), 169–192. http://doi.org/10.1146/annurev.neuro.27.070203.144230

Robins, G., & Boldero, J. (2003). Relational discrepancy theory: the implications of self-discrepancy theory for dyadic relationships and for the emergence of social structure. *Personality and Social Psychology Review, 7*(1), 56-74.

Roth, A. S. (2016, December). Shared Agency. In E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*. Retrieved from https://plato.stanford.edu/archives /win2016/entries/ shared-agency/>.

Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology, 42*, 5–27. https://doi.org/10.1177/0022022110388565

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80*(1), 1–28. http://dx.doi.org/10.1037/h0092976

Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. *Journal of Personality, 35,* 651–665. http://dx.doi.org/10.1111/j.1467-6494.1967.tb01454.x

Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, *23*(3), 393–404. https://doi.org/10.5465/AMR.1998.926617

Sadler, P., Ethier, N., & Woody, E. (2011). Interpersonal Complementarity. In L. M. Horowitz & S. Strack (Eds.), *Handbook of interpersonal psychology: Theory, research, assessment, and therapeutic interventions* (Wiley, pp. 123–142). New York, London.

Schachter, S. (1959). *The psychology of affiliation*. Stanford, CA: Stanford University Press.

Schmalt, H. D., & Heckhausen, H. (2008). Power Motivation. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and Action* (pp. 323-348). New York: Cambridge University Press.

Schubert, T.W., Waldzus, S. & Seibt, B. (2008) The Embodiment of Power and Communalism in Space and Bodily Contact. In G.R. Semin & E.R. Smith (Eds.), *Embodied grounding: Social, cognitive, affective, and neuroscientific approaches* (pp. 160-183). New York: Cambridge University Press.

Schubert, T. W., Zickfeld, J. H., Seibt, B., & Fiske, A. P. (2016). Moment-to-moment changes in feeling moved match changes in closeness, tears, goosebumps, and warmth: time series analyses. *Cognition and Emotion*, 1-11. Doi:10.1080/02699931.2016.1268998

Schulz, R. (1976). Effects of control and predictability on the physical and psychological well-being of the institutionalized aged. *Journal of Personality and Social Psychology, 33*, 563-573.

Schulz, R., Heckhausen, J., & O'Brien, A. T. (1994). Control and the disablement process in the elderly. *Journal of Social Behavior and Personality, 9,* 139-152.

Schweikard, D. P., & Schmid, H. B. (2013, Summer Edition). Collective Intentionality. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy*. Retrieved from <https://plato.stanford.edu/archives/sum2013/entries/collective-intentionality/>.

Searle, J. (1983). *Intentionality*. New York: Cambridge University Press.

Searle, J. (1990). Collective Intentions and Actions. In P. Cohen, J. Morgan, & M. Pollack (Eds.), *Intentions in Communication* (pp. 401–415). Cambridge: MIT Press.

Sebanz, N., & Knoblich, G. (2009). Prediction in Joint Action: What, When, and Where. Topics in Cognitive Science, 1(2), 353–367. doi:10.1111/j.1756-8765.2009.01024.x

Sebanz, N., Bekkering, H., & Knoblich, G. (2006). Joint action: Bodies and minds moving together. *Trends in Cognitive Sciences, 10*(2), 70–76. http://doi.org/10.1016/j.tics.2005.12.009

Sebanz, N., Knoblich, G., & Prinz, W. (2003). Representing other's actions: just like one's own? *Cognition, 88*, 11–21. doi:10.1016/S0

Sebanz, N., Knoblich, G., & Prinz, W. (2005). How two share a task: corepresenting stimulus-response mappings. *Journal of Experimental Psychology. Human Perception and Performance, 31*(6), 1234–1246. doi:10.1037/0096-1523.31.6.1234

Seibt, B., Schubert, T. W., Zickfeld, J. H., & Fiske, A. P. (2017). Interpersonal closeness and morality predict feelings of being moved. *Emotion*, *17*(3), 389. http://dx.doi.org/10.1037/emo0000271

Seligman, M. E. P. (1975). *Helplessness: On Depression, Development, and Death*. San Francisco, CA: Freeman & Co.

Sellars, W. (1980). On Reasoning about Values. *American Philosophical Quarterly*, *17*(2): 81–101.

Setiya, K. (2015). Intention. In E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*. Retrieved from <http://plato.stanford.edu/archives/sum2015/entries/intention/>.

Shah, J. Y., & Kruglanski, A. W. (2000). Aspects of goal networks: Implications for self-regulation. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 85–110). San Diego, CA: Academic Press.

Shah, J. Y., & Kruglanski, A. W. (2000). The structure and substance of intrinsic motivation. In C. Sansone & J. M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation* (pp. 105–127). San Diego, CA: Academic Press.

Shallcross, S. L., & Simpson, J. A. (2012). Trust and responsiveness in strain-test situations: A dyadic perspective. *Journal of Personality and Social Psychology*, *102*(5), 1031–1044. https://doi.org/10.1037/a0026829

Simão, C., & Seibt, B. (2014). Gratitude depends on the relational model of communal sharing. *PloS one*, *9*(1), e86158.

Simão, C., & Seibt, B. (2015). Friendly touch increases gratitude by inducing communal feelings. *Frontiers in psychology*, *6*.

Simpson, J. A. (2007). Foundations of interpersonal trust. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 587–607). New York, NY: Guilford Press.

Skinner, E. A, (1985). Action, control judgments, and the structure of control experience. *Psychological Review*, *92*, 39-58.

Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology*, *71*(3), 549–70.

Spencer, S. J., Fein, S., Wolfe, C. T., Fong, C., & Dunn, M. A. (1998). Automatic activation of stereotypes: The role of self-image threat. *Personality and Social Psychology Bulletin, 24,* 1139-1 152.

Sripada, C.S. & Stich, S. (2006). A framework for the psychology of norms. In P. Carruthers, (Ed.), *The Innate Mind: Culture and* Cognition (pp. 280–301).Oxford University Press.

Stevens, L. E., & Fiske, S. T. (1995). Motivation and cognition in social life: a social survival perspective. *Social Cognition, 13*(3), 189–214. http://doi.org/10.1521/soco.1995.13.3.189

Stirrat, M., & Perrett, D. I. (2010). Valid facial cues to cooperation and trust: Male facial width and trustworthiness. *Psychological Science, 21,* 349–354. http://dx.doi.org/10.1177/0956797610362647

Strasser, M. (2013). *Social motives and relational models: empirical studies on drivers and structures of social interaction* (Doctoral dissertation, München, Technische Universität München, Diss., 2013).

Struthers, C. W., Miller, D. L., Boudens, C. J., & Briggs, G. L. (2001). Effects of Causal Attributions on Coworker Interactions: A Social Motivation Perspective. *Basic and Applied Social Psychology, 23*(3), 169–181. http://doi.org/10.1207/153248301750433560

Struthers, C. W., Weiner, B., & Aured, K. (1998). Effects of causal attributions on personnel decisions: a social motivation perspective. *Basic and Applied Social Psychology, 20*(2), 155–166.

Tabachnik, B. G., & Fidell, L. (2014). *Using Multivariate Statistics (6th Ed)*. Pearson Education Limited, Essex.

Tajfel, H., Billig, M. G., Bundy, R. P., & Flament, C. (1971). Social categorization and intergroup behaviour. *European Journal of Social Psychology, 1*: 149–178. doi:10.1002/ejsp.2420010202

Tajfel, H. and Turner, J. C. (1979). 'An integrative theory of intergroup conflict'. In: Austin, W. G. and Worchel, S. (Eds) *The Social Psychology of Intergroup Relations* (pp. 33-47). Monterey, California: Brooks/Cole.

Thomsen, L. & Carey, S. (2013). Core cognition of relational models. In M. Banaji and S. Gelman (eds.), *Navigating the Social World: What Infants, Children, and Other Species Can Teach Us (pp. 17-23).* Oxford University Press.

Thomsen, L. Frankenhuis, W. E., Ingold-Smith, M. & Carey, S. (2011). Big & mighty: preverbal infants mentally represent social dominance. *Science, 331*, 477-480.

Thibaut, J., & Kelley, H. H. (1959). *The social psychology of groups*. New York: Wiley.

Thielmann, I., & Hilbig, B. E. (2015). Trust: An integrative review from a person–situation perspective. *Review of General Psychology*, *19*(3), 249–277. https://doi.org/10.1037/gpr0000046

Thompson, S. C., & Schlehofer, M. M. (2008). The many sides of control motivation: motives for high, low and illusory control. In J. Y, Shah & W. L. Gardner (Eds.), *Handbook of Motivation Science* (pp. 41-56). NY: The Gilford Press.

Tiedens, L. Z., & Fragale, A. R. (2003). Power moves: complementarity in dominant and submissive nonverbal behavior. *Journal of Personality and Social Psychology*, *84*(3), 558. DOI: 10.1037/0022-3514.84.3.558

Tiedens, L. Z., Unzueta, M. M., & Young, M. J. (2007). An unconscious desire for hierarchy? The motivated perception of dominance complementarity in task partners. *Journal of Personality and Social Psychology, 93*(3), 402–14. http://doi.org/10.1037/0022-3514.93.3.402

Todorov, A., Pakrashi, M., & Oosterhof, N. N. (2009). Evaluating faces on trustworthiness after minimal time exposure. *Social Cognition, 27,* 813–833. http://dx.doi.org/10.1521/soco.2009.27.6.813

Tollefsen, D. 2005. Let's pretend! Children and joint action. *Philosophy of the Social Sciences 35*(1): 75–97.

Tollefsen, D. (2015, November). Collective intentionality. In J Fieser and B. Dowden (Eds), *The Internet Encyclopedia of Philosophy*, ISSN 2161-0002. Retrieved from http://www.iep.utm.edu/coll-int/.

Tolman, E. C. (1955). Principles of performance. *Psychological Review,62,* 315-326.

Tomasello, M. (2014). Horizon: The ultra-social animal. *European Journal of Social Psychology, 44*, 187–194. http://doi.org/10.1002/ejsp.2015

Tomasello, M., & Carpenter, M. (2007). Shared intentionality. *Developmental Science, 10*(1), 121–125. http://doi.org/10.1111/j.1467-7687.2007.00573.x

Trice, A. (1985). An academic Locus of Control scale for college students. *Perceptual and Motor Skills, 61*, 1043-1046.

Tuomela, R., & Miller, K. (1988). We-Intentions. *Philosophical Studies, 53*, 367–89.

Tuomela, R. (2005). We-intentions revisited. *Philosophical Studies 125*, 327–369.

Tuomela, R. (2006). Joint Intention, We-mode and I-mode. *Midwest Studies In Philosophy, 30*, 35–58. doi:10.1111/j.1475-4975.2006.00127.x

Turner, J. L., Foa, E. B., & Foa, U. G. (1971). Interpersonal reinforcers. *Journal of Personality and Social Psychology, 19*(2), 168–180.

Twenge, J. M., Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Bartels, J. M. (2007). Social exclusion decreases prosocial behavior. *Journal of Personality and Social Psychology, 92*(1), 56–66. http://doi.org/10.1037/0022-3514.92.1.56

Twenge, J. M., Baumeister, R. F., Tice, D. M., & Stucke, T. S. (2001). If you can't join them, beat them: effects of social exclusion on aggressive behavior. *Journal of Personality and Social Psychology, 81*(6), 1058–1069. http://doi.org/10.1037/0022-3514.81.6.1058

Van Lange, P. A. M., & Rusbult, C E. (2011). Interdependence theory. In P.A.M. Van Lange, A.W. Kruglanski, & E.T. Higgins, (Eds.). *Handbook of Theories of Social Psychology* (Vol. 2, pp. 251-272). Thousand Oaks, CA: Sage.

Van Schie, H. T., Waterschoot, B. M., & Bekkering, H. (2008). Understanding action beyond imitation: Reversed compatibility effects of action observation in imitation and joint action. *Journal of Experimental Psychology: Human Perception and Performance, 34*(6), 1493–1500.

Veltkamp, M., Aarts, H., & Custers, R. (2008). On the emergence of deprivation-reducing behaviors: Subliminal priming of behavior representations turns deprivation into motivation. *Journal of Experimental Social Psychology, 44*, 866–873. https://doi.org/10.1016/j.jesp.2007.08.005

Veltkamp, M., Aarts, H., & Custers, R. (2009). Unravelling the motivational yarn: A framework or understanding the instigation of implicitly motivated behavior resulting from deprivation and positive affect. *European Review of Social Psychology, 20*, 345-381.

Velleman, J. David (1989). *Practical Reflection*. Princeton: Princeton University Press.

Veroff, J. (1957). Development and validation of a projective measure of power motivation. *Journal of Abnormal and Social Psychology, 54*, 1-8.

Veroff, J., & Veroff, J. B. (1980). *Social incentives: a life-span developmental approach*. New York: Academic Press

Vohs, K. D., & Baumeister, R. (2008). Can satisfaction reinforce wanting?: A new theory about long-term changes in strength of motivation. In J. Y. Shah and W. L. Gardner (Eds.), *Handbook of Motivation Science* (pp. 373-389). New York: The Gilford Press.

Vroom, V. H. (1964). *Work and motivation*. New York, NY: Wiley.

Warneken, F., & Tomasello, M. (2007). Helping and cooperation at 14 months of age. *Infancy, 11*, 271–294.

Warneken, W., Lohse, K., Melis, A. P., & Tomasello, M. (2011). Young children share the spoils after collaboration. *Psychological Science, 22*(2), 267–273.

Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin, 98*(2), 219–235. doi:10.1037/0033-2909.98.2.219

Watzlawick, P., Beavin, J. H., & Jackson, D. D. (1977). *Pragmatics of human communication*. New York: Norton, 1977.

Weber, M. (1978). *Economy and society* (G. Roth&C. Wittich, Trans.). Berkeley: University of California Press. (Original work published 1922)

Weiner, B. (2010). The development of an attribution-based theory of motivation: a history of ideas. *Educational Psychologist, 45*(1), 28-36. DOI: 10.1080/00461520903433596

Weiner, B., Amirkhan, J., Folkes, V. S., & Verette, J. A. (1987). An attributional analysis of excuse giving: studies of a naïve theory of emotion. *Journal of Personality and Social Psychology, 52*(2), 316-324.

Weiner, B., Figueroa-Muñoz, A., & Kakihara, C. (1991). The goals of excuses and communication strategies related to causal perceptions. *Personality and Social Psychological Bulletin, 17*(1), 4-13. DOI: 10.1177/0146167291171002

Wertheimer, M. (1923/ 2001). Laws of organization in perceptual forms. In Ellis W. (Ed.). A Source Book of Gestalt Psychology (4th ed.) (71-88). Oxon: Routledge.

White, R. W. (1959). Motivation reconsidered: the concept of competence. *Psychological Review, 66*, 297–333. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/13844397

Wieselquist, J., Rusbult, C. E., Foster, C. a, & Agnew, C. R. (1999). Commitment, pro-relationship behavior, and trust in close relationships. *Journal of Personality and Social Psychology, 77*(5), 942–966. http://doi.org/10.1037/0022-3514.77.5.942

Wiggins, J. S. (1979). A psychological taxonomy of trait-descriptive terms: The interpersonal domain. *Journal of Personality and Social Psychology, 33*, 409-420.

Williams, K. D. (2007). Ostracism: The Kiss of Social Death. *Social and Personality Psychology Compass, 1*(1), 236–247. http://doi.org/10.1111/j.1751-9004.2007.00004.x

Wimmer, H. and Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13*, 103-128.

Wish, M., Deutsch, M., & Kaplan, S. B. (1976). Perceived dimensions of interpersonal relations. *Journal of Personality and Social Psychology, 33*, 409-420.

Wolpert, D. M., Doya, K., & Kawato, M. (2003). A unifying computational framework for motor control and social interaction. *Philosophical Transactions of the Royal Society of London, 358*, 593–602. http://doi.org/10.1098/rstb.2002.1238

Worchel, S., & Brehm, J. W. (1970). Effects of threats to attitudinal freedom as a function of agreement with the communicator. *Journal of Personality and Social Psychology, 14*, 18–22. http://dx.doi.org/10.1037/h0028620

Wright, R. A. (2016). Motivation theory essentials: Understanding motives and their conversion into effortful goal pursuit. *Motivation and Emotion, 40*(1), 16–21. http://doi.org/10.1007/s11031-015-9536-4

Wright, R. A. (1996). Brehm's theory of motivation as a model of effort and cardiovascular response. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 424–453). New York: Guilford.

Wright, R. A., & Brehm, J. W. (1989). Energization and goal attractiveness. In I. A. Irvin (Ed.). *Goal concepts in personality and social psychology* (pp. 169–210). Hillsdale, NJ: Erlbaum.

Yamagishi, T. (1986). The Provision of a Sanctioning System as a Public Good. *Journal of Personality and Social Psychology, 51*(1), 110–116.

Yamagishi, T., & Yamagishi, M. (1994). Trust and commitment in the United States and Japan. *Motivation and Emotion*, *18*(2), 129–166. http://doi.org/10.1007/BF02249397

Young, P. T. (1961). *Motivation and emotion: A survey of the determinants of human and animal activity*. New York: Wiley.

Zadro, L., Williams, K. D., & Richardson, R. (2005). Riding the 'O' train: Comparing the effects of ostracism and verbal dispute on targets and sources. *Group Processes and Interpersonal Relations*, 8, 125–143

Appendices

Appendix A

Portuguese sentences rated by participants on the priming condition and first control condition (Study 1, Chapter 3). An English translation follows each sentence.

1. A Ana pediu à professora orientação para a preparação do exame. A professora olhou para a Ana e saiu da sala. */ Ana asked the teacher for guidance in studying for the exam. The teacher looked at her and left the room.*

2. Era a vez do Nuno de dar boleia ao João do trabalho para casa. O João apanhou o autocarro. */ It was Nuno's turn to give João a ride home from work. João took the bus.*

3. O Pedro foi apanhado a roubar numa loja. Para compensar, aceitou fazer 10 dias de trabalho comunitário voluntário. */ Pedro was caught stealing in a shop. As compensation, he agreed to do 10 days of voluntary community work.*

4. O João pediu à empresa seguradora que pagasse os custos de reparação. A seguradora nunca lhe respondeu. */ João asked the insurance to cover for the repair costs. The insurance company never replied.*

5. Perto da hora de saída o chefe do Mário disse-lhe que ele teria que ficar até mais tarde para terminar uma tarefa urgente. O Mário saiu à hora de saída. / *Close to exit hour Mario's boss told him to stay after hours to complete an urgent task. Mario left the office at the usual time.*

6. O pai do José, velho e doente, urinou as calças e pediu-lhe ajuda. O José estava noutro quarto e continuou a ver o jogo de futebol. */ José's old and sick father urinated in his trousers and called José for help. José was in the other room and continued watching the football game.*

7. Como ninguém gosta de tarefas administrativas, o grupo decidiu sortear quem ficaria responsável por essa tarefa este ano. O Ricardo foi sorteado e aceitou a tarefa. */ Since nobody likes boring paperwork, the group decided to draw lots to appoint the responsible for such task. Ricardo was sorted and took the job.*

8. Os três livros que a Carla encomendou online chegaram a tempo. A livraria virtual apenas lhe cobrou um livro no cartão de crédito. / *The three books Carla ordered online arrived on time. The online bookshop charged her credit card for one book only.*

9. O Miguel já fez dois turnos noturnos na vez do Paulo, mas até agora o Paulo nunca aceitou fazer os turnos noturnos do Miguel. / *Miguel already worked two night shifts in Paulo's place, but so far Paulo has never agreed to do Miguel's night shifts.*

10. A Joana sentiu-se mal e ligou ao seu marido. O marido interrompeu imediatamente o seu trabalho e levou a Joana ao hospital. / *Joana felt ill and called her husband. The husband immediately interrupted his work and took Joana to the hospital.*

11. Um dos empregados do Luís cometeu um erro altamente prejudicial para a empresa. Na reunião seguinte o Luís repreendeu o seu empregado. */ One of Luis's employees made a mistake extremely damaging to the company. In the next meeting Luis publicly rebuked the employee.*

12. O chefe do João pediu-lhe um relatório com urgência. O João prometeu concluí-lo antes do final da semana. / *João's boss asked him to do a report urgently. João promised to finish it before the end of the week.*

13. A criança pediu à sua mãe ajuda com os trabalhos de casa. A mãe ignorou o pedido. / *The child asked her mother to help her with the homework. Her mother ignored this request.*

14. O polícia viu o António falar ao telemóvel enquanto conduzia e ordenou-lhe que parasse o carro. O António parou o carro na berma imediatamente. */ The police officer saw António using the cellphone while driving and ordered him to stop the car. António stopped the car immediately at the roadside.*

15. O empregado deixou a conta na mesa. O cliente pagou a conta e deixou uma gorjeta ao empregado pelo excelente serviço. */ The waiter came and left the bill on the table. The customer paid the bill and tipped the waiter for the good service.*

16. A Sofia ofereceu-se para ajudar a Rita a pintar o seu apartamento. A Rita pintou o apartamento sozinha. */ Sofia volunteered to help Rita paint the apartment, but Rita painted her apartment alone.*

17. O professor pediu ao aluno que parasse de trocar sms durante a aula. O aluno voltou-se para o outro lado e continuou a mexer no telemóvel. */ The teacher told the student to stop texting during the class. The student turned around and continued texting.*

18. O José convidou a Lisa para um encontro e ela aceitou. */ José invited Lisa for a date and she accepted.*

19. A Ana emprestou €20 à Maria. Passada uma semana a Maria pagou à Ana o que lhe devia. */ Ana lent €20 to Maria. A week later Maria paid Ana what she owed.*

20. A filha pediu o carro emprestado ao seu pai. Ele fez-lhe algumas perguntas e entregou-lhe as chaves do carro. */ The daughter asked her father's permission to borrow his car. He asked her some questions and gave her the car keys.*

Appendix B

Portuguese sentences rated by participants on the second control condition (Study 1, Chapter 3). An English translation follows each sentence.

1. Sempre que a Ana tem tempo livre entretém-se a resolver problemas de matemática e de lógica. *Whenever she has free time, Ana likes to solving problems of mathematics and logic*.

2. O João não quis esperar. Apanhou o primeiro autocarro que apareceu. */ João did not want to wait. He caught the first bus.*

3. O Pedro deixou uma torneira aberta em sua casa. A casa está cheia de água por todo o lado e agora ele tem que limpar tudo. */ Pedro left the tap open at his place. There is water everywhere and he needs to clean it.*

4. A lâmpada fundiu-se e como o João não tinha mais nenhuma para a substituir teve que acender uma vela. */ The light bulb went out, and since João did not have another one to replace it he had to light up a candle.*

5. Hoje o Mário foi treinar ao ginásio e tentou otimizar o tempo do treino. Depois de muito esforço e pouco descanso terminou o treino à hora planeada. */ Today Mário went to the gym and tried to optimize his practice time. After much effort and short breaks he finished his practice at the intended time.*

6. O José é idoso e sofre de incontinência urinária. Na noite passada esqueceu-se de ir à casa de banho e de repente urinou as calças. */ José is an elderly man and suffers from urinary incontinence. Last night he forgot to go to the toilet and suddenly urinated his trousers.*

7. O Ricardo detesta tarefas administrativas, mas o seu escritório de casa estava tão desarrumado que decidiu tirar o sábado para organizar a papelada. */ Ricardo hates paperwork, but his office was so messy that he decided to take the Saturday to organize it.*

8. A Carla tem três livros novos. Ela procurou estes exemplares durante muito tempo e está ansiosa por começar a lê-los. */ Carla has three new book. She search for these book for a long time and is eager to start reading them.*

9. O Paulo é segurança e tem que fazer turnos noturnos com frequência. Ele não se importa, mas por vezes fica realmente cansado. */ Paulo is a security guard and has to do night shifts frequently. He does not mind, but sometimes he gets really tired.*

10. A Joana não tinha guarda-chuva quando começou a chover. Molhou-se, ficou doente e passou uma semana inteira na cama. */ Joana did not have an umbrella. She got wet, got sick and spent the whole week in bed.*

11. O Luís é muito curioso, gosta de estudar e aprender coisas. É uma pena que ele não tenha continuado os seus estudos. */ Luis is very curious and loves to study and learn new things. It is waste that he did not follow through with his education.*

12. O João passou a noite inteira na sua oficina a construir uma mesa para a sua sala. Pela manhã, a mesa estava concluída. */ João spent the whole night in his workshop building a table for his dining room. In the morning the table was finished.*

13. A Maria está aborrecida porque não consegue encontrar o seu casaco de inverno. */ Maria is upset because she cannot find her winter coat.*

14. Depois de várias horas a conduzir o António sentiu-se com sono. Ainda tentou resistir, mas acabou por parar o carro na berma para descansar. */ After several hours driving, António felt tired. He tried to resist, but ended up parking the car in the roadside to rest.*

15. Ele saiu para experimentar um restaurante novo na cidade. Achou a comida e a decoração absolutamente maravilhosas. */ He went out to try a new restaurant in town. He found the food and the decoration absolutely marvelous.*

16. A Rita mudou-se recentemente de casa. Como o apartamento estava com um ar velho decidiu pintá-lo. */ Rita moved out recently. Since the new apartment looked dingy she decided to paint it.*

17. O Pedro adora tecnologia e eletrónica. Ontem abriu o computador e não pensou em mais nada até conseguir concertá-lo. */ Pedro loves technology and electronics. Yesterday, he opened the computer and did not think about anything else until he fixed it.*

18. Ontem o José calçou um par de sapatos novinho em folha. */ Yesterday José wore a brand new pair of shoes.*

19. A Ana ouve muita música clássica. Mozart relaxa-a quando se sente ansiosa e preocupada. */ Ana listens a lot to classical music. Mozart relaxes her when she feels anxious and concerned.*

20. A arrecadação da Maria estava cheia de caixas antigas. Como estavam em boas condições decidiu limpá-las e utilizá-las para arrumação. */ Maria's basement was full of old boxes. Since they were in good condition, she decided to clean and use them.*

Appendix C

Lexical decision task (Studies 1-4, Chapter 3)

Utilize a chave apresentada, para substituir cada letra pelo número correspondente o mais rápido possível. Tem 60 segundos.

W	B	T	P	V	D	G	C	J
1	2	3	4	5	6	7	8	9

T	W	C	G	J	V	B	D	P	V	P	T	D	C	B

P	D	V	B	T	D	P	W	B	J	D	T	C	V	G

J	P	W	C	B	V	J	D	P	C	G	W	T	B	V

T	G	V	B	P	W	C	V	D	J	W	J	G	D	C

G	T	J	C	W	C	G	D	J	P	B	V	T	C	B

W	P	G	V	B	J	C	P	T	C	G	W	J	D	V

J	P	G	D	G	B	J	C	W	V	T	B	D	T	W

T	V	G	W	D	P	V	D	B	J	G	T	J	P	B

W	C	T	V	P	B	J	G	W	D	V	C	T	P	G

Nº do Participante_____

Appendix D

Portuguese sentences rated by participants (Study 2, Chapter 3). An English translation follows each sentence.

1. O professor pediu ao aluno que parasse de trocar sms durante a aula. O aluno voltou-se para o outro lado e continuou a mexer no telemóvel. */ The teacher told the student to stop texting during the class. The student turned around and continued texting.*

2. A Sofia ofereceu-se para ajudar a Rita a pintar o seu apartamento. A Rita pintou o apartamento sozinha. */ Sofia volunteered to help Rita paint the apartment, but Rita painted her apartment alone.*

3. Como ninguém gosta de tarefas administrativas aborrecidas, o grupo decidiu sortear quem ficaria responsável por essa tarefa este ano. A Paula foi sorteada e aceitou a tarefa. */ Since nobody likes boring paperwork, the group decided to draw lots to appoint the responsible for such task. Paula was sorted and took the job.*

4. O João pediu à empresa seguradora que pagasse os custos de reparação. A seguradora nunca lhe respondeu. */ João asked the insurance to cover for the repair costs. The insurance company never replied.*

5. À hora marcada o Ricardo bateu à porta do Diretor do Colégio para cumprir o seu castigo por ter copiado no exame. Ninguém atendeu. */ At the appointed time Ricardo knocked at the Head Teacher's door to complete his detention for cheating in the exam. Nobody answered.*

6. O chefe do Alfredo pediu-lhe um relatório com urgência. O Alfredo prometeu concluí-lo antes do final do dia. */ Alfredo's boss asked him to do a report urgently. Alfredo promised to finish it before the end of the day.*

7. A Patrícia repreendeu publicamente um empregado por ter cometido um erro altamente prejudicial para a empresa. Em público, o empregado reconheceu o seu erro. */ Patrícia publicly rebuked an employee for making a mistake extremely damaging to the company. The employee publicly acknowledged his fault.*

8. A Ana emprestou €20 à Maria. Passados três dias a Maria pagou à Ana o que lhe devia. */ Ana lent €20 to Maria. Three days later Maria paid Ana what she owed.*

9. Era a vez de o Nuno dar boleia ao João do trabalho para casa, mas o João apanhou o autocarro. */ It was Nuno's turn to give João a ride home from work, but João took the bus.*

10. O Tenente Costa pediu ao Capitão Ribeiro que lhe desse uma folga no dia seguinte. O Capitão Ribeiro atribuiu uma tarefa ao Tenente Costa para ser concluída no dia seguinte. */ Lieutenant Costa asked Captain Ribeiro to give him the next day off. Captain Ribeiro assigned Lieutenant Costa to a task to be completed in the next day.*

11. O José convidou a Lisa para um encontro e ela aceitou. */ José invited Lisa for a date and she accepted.*

12. Perto da hora de saída o chefe do Mário disse-lhe que ele teria que ficar até mais tarde para terminar uma tarefa urgente. O Mário saiu à hora de saída. */ Close to exit hour Mario's boss told him to stay after hours to complete an urgent task. Mario left the office at the usual time.*

13. A Luísa foi apanhada a roubar numa loja. Para compensar, aceitou fazer 10 dias de trabalho comunitário voluntário. */ Luísa was caught stealing in a shop. As compensation, she agreed to do 10 days of voluntary community work.*

14. O empregado deixou a conta na mesa. O cliente pagou a conta e deixou uma gorjeta ao empregado pelo excelente serviço. */ The waiter came and left the bill on the table. The customer paid the bill and tipped the waiter for the good service.*

15. A Joana sentiu-se mal e ligou ao seu marido. O marido interrompeu imediatamente o seu trabalho e levou a Joana ao hospital. */ Joana felt ill and called her husband. The husband immediately interrupted his work and took Joana to the hospital.*

16. A Margarida já fez dois turnos noturnos na vez da Cristina, mas até agora a Cristina nunca aceitou fazer os turnos noturnos da Margarida. */ Margarida already worked two night shifts in Cristina's place, but so far Cristina has never agreed to do Margarida's night shifts.*

17. Os três livros que a Carla encomendou online chegaram a tempo. A livraria virtual apenas lhe cobrou um livro no cartão de crédito. */ The three books Carla ordered online arrived on time. The online bookshop charged her credit card for one book only.*

18. O polícia viu o António falar ao telemóvel enquanto conduzia e ordenou-lhe que parasse o carro. O António parou o carro na berma imediatamente. */ The police officer saw António using the cellphone while driving and ordered him to stop the car. António stopped the car immediately at the roadside.*

19. A filha pediu o carro emprestado ao seu pai. Ele fez-lhe algumas perguntas e entregou-lhe as chaves do carro. */ The daughter asked her father's permission to borrow his car. He asked her some questions and gave her the car keys.*

20. O pai do Bruno, velho e doente, urinou as calças e pediu-lhe ajuda. O Bruno estava noutro quarto e continuou a ver o jogo de futebol. */ Bruno's old and sick father urinated in his trouser and asked Bruno for help. Bruno was in the other room continued watching the football game.*

Appendix E

Exploratory items measuring perceived effort and causes of effort (Studies 2 and 3, Chapter 3)

Como quantifica o seu nível de esforço na tarefa anterior?

How do you quantify you effort in the previous task?

(1- Nenhum; 4 – Moderado; 7 – Máximo)

(1 – no effort, 4 – moderate effort; 7 – maximum effort)

Em que medida cada um dos seguintes factores influenciaram o se esforço na tarefa anterior?

How much each of the following factors influenced your effort in the previous task?

(1 - Não influenciou; 4 – Influenciou moderadamente; 7 – Influenciou completamente)

(1 – did not influence, 4 – influenced moderately, 7 – influenced completely)

1. Receber uma boa avaliação do experimentador */ To get a positive evaluation from the experimenter*
2. Vontade de testar as minhas capacidades cognitivas */ The desire to test my cognitive skills*
3. Desejar ir ao encontro das expectativas do experimentador */ The desire to meet the expectations of the experimenter*
4. Tratar-se de uma tarefa desafiante */ The fact that it was a challenging task*
5. Querer cumprir o meu dever para com o experimentador */ Wanting to do my duty to the experimenter*
6. Merecer os créditos que me foram atribuídos pelo experimentador */ Earning the credits that were given to me by the experimenter*
7. Evitar sentir-me mal por ter um baixo desempenho */ To avoid feeling bad for having a bad performance*
8. Receber os 100 € do sorteio (only in Study 3) */ To get the 100 € from the lottery*

Appendix F

Exploratory items measuring Liking and Trust in the experimenter, sense of Belonging and Control in the interaction with the experimenter (Studies 2 and 3, Chapter 3)

Liking

1. No geral eu gostei do experimentador/ *In general I liked the experimenter*.

Trust

2. Eu confio totalmente no experimentador/ *I trust the experimenter completely*.

3. Numa situação difícil e decisiva eu não gostaria de depender do experimentador/ *In a difficult situation I do not want to rely on the experimenter*.

4. O experimentador teve em conta os meus interesses/ *The experimenter considered my interests*

5. O experimentador mostrou preocupação com o meu bem-estar/ *The experimenter showed concern with my well-being*

6. Eu posso apoiar-me no Experimentador/ *I can rely on the experimenter*.

Control

7. Eu tive controlo sobre as ações do experimentador/ *I had control over the actions of the experimenter.*

8. Eu tive dificuldade em antecipar o que o experimentador ia fazer a seguir/ *I had difficulty in anticipating what the experimenter was going to do next.*

9. Eu tive controlo sobre os resultados da nossa interação/ *I had control over the results of our interaction.*

10. Eu tive controlo sobre a forma como eu e o experimentador nos relacionámos/ *I had control over the way we related with one another*.

11. Eu tive dificuldade em saber como responder às ações do Experimentador/ *I had difficulty in knowing how to respond to the actions of the experimenter*.

Belonging

12. O experimentador respeita-me enquanto pessoa/ *The experimenter respects me as a person.*

13. Eu sinto-me reconhecido pelo experimentador/ *I feel recognized by the experimenter*.

14. O experimentador valoriza-me enquanto pessoa/ *The experimenter values me as a person.*

15. Eu sinto-me rejeitado pelo experimentador/ *I feel rejected by the experimenter.*

16. Eu sinto-me próximo do experimentador/ *I feel close to the experimenter.*

Appendix G

Evaluative space grid (Larsen, Norris, McGraw, et al., 2009; Study 4, Chapter 3)

Por favor, indique como se sente em relação ao seu desempenho na tarefa anterior.
Assinale com uma cruz a célula que corresponde à sua resposta.

		Quão bem se sente com o seu desempenho na tarefa anterior?				
		Nada Bem	Ligeiramente Bem	Moderadamente Bem	Bastante Bem	Extremamente Bem
Quão mal se sente com o seu desempenho na tarefa anterior?	Nada Mal					
	Ligeiramente Mal					
	Moderadamente Mal					
	Bastante Mal					
	Extremamente Mal					

Appendix H

Scenarios (Study 1, Chapter 4)

The following scenarios are translated from the Portuguese version.

Market pricing

Expected RelComp

Mr. António is the landlord of an apartment which is rented to Rodrigo. Since Mr. António changed bank account recently, he asked Rodrigo to wait for his phone call with the new bank account number, before making the payment. This month's rent is due today, and Mr. António calls Rodrigo to give him the new bank account number.

- Hi Mr. Rodrigo. I am calling you to give you my new account number. I would like you to make the payment of the rent to that account from now on.

Complementary	*Rodrigo: - Of course Mr. António. Just give me the number and I'll do it right away!*" Mr. António communicates the new account number to Rodrigo. By the end of the day he confirms that the payment **is** on his new account".
Non-complementary	*Rodrigo: - Mr. António, I'm going to keep the new number, but can't afford this month's rent. Give me until next month…* Mr. António communicates the new account number to Rodrigo. By the end of the day he confirms that Rodrigo did not make the payment".

Unexpected RelComp

Mr. António is the landlord of an apartment which is rented to Rodrigo. **Rodrigo did not pay the rent in the last three consecutive months**. Since Mr. António changed bank account recently, he asked Rodrigo to wait for his phone call with the new bank account number, before making the payment. This month's rent is due today, and Mr. António calls Rodrigo to give him the new bank account number. (Highlight not used in the original version)

- Hi Mr. Rodrigo. I am calling you to give you my new account number. I would like you to make the payment of the rent to that account from now on.

Complementary	*Rodrigo: - "Of course Mr. António. Just give me the number and I'll do it right away!*" Mr. António communicates the new account number to Rodrigo. By the end of the day he checks that the payment has been made".
Non-complementary	*Rodrigo: - Mr. António, I'm going to keep the new number, but can't afford this month's rent. Give me until next month…* Mr. António communicates the new account number to Rodrigo. By the end of the day he checks that the payment has not been made".

Communal sharing

Expected RelComp

Samuel just moved in to a new apartment. However, the apartment It looked a bit dingy, so Samuel decided to paint it himself. Since Samuel didn't want to do it alone, he called his brother Tiago to ask for help.

Samuel: - Hey Tiago, how's it going? I'm planning to paint my apartment myself next month. Would you give me a hand?"

Complementary	*Tiago: - Of course*! I will help you with pleasure. Which day? Samuel tells Tiago the date and in the set day Tiago shows up to help.
Non-complementary	*Rodrigo: - Humm… Next month is complicated. Sorry, bro…* In the day of the painting Samuel did the job alone.

Unexpected RelComp

Samuel just moved in to a new apartment. However, the apartment It looked a bit dingy, so Samuel decided to paint it himself. **His brother Tiago is not an available person. He is always busy when Samuel needs him.** However, Since Samuel didn't want paint the apartment alone, he called Tiago to ask for help. (Highlight not used in the original version)

Samuel: - Hey Tiago, how's it going? I'm planning to paint my apartment myself next month. Would you give me a hand?"

Complementary	*Tiago: - Of course*! I will help you with pleasure. Which day? Samuel tells Tiago the date and in the set day Tiago shows up to help.
Non-complementary	*Rodrigo: - Humm… Next month is complicated. Sorry, bro…* In the day of the painting Samuel did the job alone.

Appendix I

Dependent Measures (Studies 1 and 2, Chapters 4)

Items used in Study 1 are in Portuguese and items used on Study 2 are in English. Unlike Study 1, Study 2 described an ongoing interaction during a conversation. The items on each study were phrased in a way that best suited the interaction description. Therefore, the Portuguese and English items are not a direct translations of one another.

Liking

1. No geral eu (_ *nome do iniciador*) gosto do _ (*nome do respondente*).
   In genelar I (_*name of the initiator*) like_ (*name of the respondent*).

Positive Affect

2. *A resposta do _ (nome do respondente) deixou-me (ao _ nome do iniciador) num estado emocional positivo.*
   I (_ *name of the initiator*) feel positive about _ 's (*name of the respondent*) response to my action.

Negative Affect

3. *A resposta do _ (nome do respondente) deixou-me (ao _ nome do iniciador) num estado emocional negativo.*
   I (_ *name of the initiator*) feel negative about _'s (*name of the respondent*) response to my action.

Maintenance

4. *As coisas correram de um modo tranquilo entre mim (_ nome do iniciador) e o _ (nome do respondente).* (reversed)
   Things are going very smoothly between _ (*name of the respondent*) and I (_ *name of the initiator*). (reversed)

5. *Eu (_ nome do iniciador) e o _ (nome do respondente) tivemos dificuldades na comunicação.*
   _ (*name of the respondent*) and I (_ *name of the initiator*) are having a difficult time communicating.

6. *Eu (_ nome do iniciador) achei a nossa interação frustrante.*
   I (_ *name of the initiator*) am finding our interaction frustrating.

7. *Foi fácil para mim (_ nome do iniciador) e para o _ (nome do respondente) coordenar os nossos esforços.* (reversed)
   It has been easy for us (_ *names of the initiator and respondent*) to coordinate our actions. (reversed)

Control

8. *Eu (_ nome do iniciador) tive facilidade em controlar o resultado da minha interação com o _ (nome do respondente).*
   I (_ *name of the initiator*) am easily controlling the outcomes of my interaction with _ (*name of the respondent*).

9. *Eu (_ nome do iniciador) sinto que não consegui obter do _ (nome do respondente) a resposta que eu desejava.* (reversed)
   I (_ *name of the initiator*) did not get the response that I wanted from _ (*name of the respondent*). (reversed)

10. *Eu (_ nome do iniciador) consegui relacionar-me com o _ (nome do respondente) de forma a alcançar os resultados que eu pretendia.*
    I (_ *name of the initiator*) am managing to relate to _ (*name of the respondent*) in order to achieve the outcomes that I desire.

11. *Eu (_ nome do iniciador) sinto que escolhi uma ação eficaz para obter do _ (nome do respondente) a resposta que eu queria.*
    I (_ *name of the initiator*) feel that I chose an action that was effective to get the response that I wanted from _ (*name of the respondent*).

12. *As minhas ações (do _ nome do iniciador) não provocaram os resultados que pretendia, na interação com o _ (nome do respondente).* (reversed)

My (_ *name of the initiator*) actions are not leading to the outcomes that I desire, in my interaction with _ (*name of the respondent*). (reversed)

13. *Eu (_ nome do iniciador) sinto que as minhas ações causaram no _ (nome do respondente) a reação que eu desejava.*
    I (_ *name of the initiator*) feel that my actions are causing _ (*name of the respondent*) to respond the way I wish for.

Trust

14. *Eu (_ nome do iniciador) confio totalmente no _ (nome do respondente).*
    I (_ *name of the initiator*) trust _ (*name of the respondent*) completely

15. *Numa situação difícil e decisiva eu (_ nome do iniciador) não gostaria de depender do _ (nome do respondente).* (reversed)
    If push comes to shove, I (_ *name of the initiator*) do not want to rely on (*name of the respondent*) (reversed)

16. *O _ (nome do respondente) tem em conta os meus (do _ nome do iniciador) interesses.*
    _ (*name of the respondent*) considers my (_'s *name of the initiator*) interests at all times.

17. *O _ (nome do respondente) preocupa-se com o meu (do _ nome do iniciador) bem-estar.*
    _ (*name of the respondent*) is concerned with my (_'s *name of the initiator*) well-being.

18. *Eu (_ nome do iniciador) posso apoiar-me no _ (nome do respondente).*
    I (_ *name of the initiator*) can build upon _(*name of the respondent*).

Meta-trust

19. *O _ (nome do respondente) confia totalmente em mim (_ nome do iniciador).*
    _ (*name of the respondent*) trusts me (_ *name of the initiator*) completely.

20. *Numa situação difícil o _ (nome do respondente) não gostaria de depender de mim (_ nome do iniciador).* (reversed)
    If push comes to shove, _ (*name of the respondent*) does not want to rely on me (_ *name of the initiator*). (reversed)

21. *O _ (nome do respondente) acredita que eu (_ nome do iniciador) tenho em conta os seus interesses.*
    _ (*name of the respondent*) believes I (_ *name of the initiator*) consider his interests at all times.

22. *O _ (nome do respondente) sente que eu (_ nome do iniciador) me preocupo com o seu bem-estar.*
    _ (*name of the respondent*) feels I (_ *name of the initiator*) am concerned with his well-being.

23. *O _ (nome do respondente) sabe que pode apoiar-se em mim (_ nome do iniciador).*
    _ (*name of the respondent*) knows he can build upon me (_ *name of the initiator*).

Belonging

24. *O _ (nome do respondente) respeita-me (ao _ nome do iniciador) enquanto pessoa.*
    _ (*name of the respondent*) respects me (_ *name of the initiator*) as a person.

25. *Eu (_ nome do iniciador) sinto-me reconhecido pelo _ (nome do respondente).*
    I (_ *name of the initiator*) feel appreciated by _ (*name of the respondent*).

26. *Eu (_ nome do iniciador) sinto que o _ (nome do respondente) me valoriza enquanto pessoa.*
    _ (*name of the respondent*) really values me (_ *name of the initiator*) as a person.

27. *Eu (_ nome do iniciador) sinto-me rejeitado pelo _ (nome do respondente).* (reversed)
    I (_ *name of the initiator*) feel rejected by _ (*name of the respondent*). (reversed)

28. *Eu (_ nome do iniciador) sinto-me próximo do _ (nome do respondente).*
    I (_ *name of the initiator*) feel close to _ (*name of the respondent*).

Perceived RelComp

Action complementarity

29. A minha acção (do _ *nome do iniciador*) e a ação do _ (*nome do respondente*) combinaram bem uma com a outra.
    My (_ *name of the initiator*) action and _'s (*name of the respondent*) action meshed well.

30. A minha ação (do _ *nome do iniciador*) e a ação do _ (*nome do respondente*) não encaixaram bem uma na outra. (reversed)
    My (_ *name of the initiator*) action and _'s (*name of the respondent*) action did not fit together.

31. A minha ação (do _ *nome do iniciador*) completou bem a ação do _ (*nome do respondente*).
    's (*name of the respondent*) action completed my (*name of the initiator*) action well.

32. A minha ação (do _ *nome do iniciador*) não foi consistente com a ação do _ (*nome do respondente*). (reversed)
    's (*name of the respondent*) action was not consistent with my (*name of the initiator*) action.

33. A minha ação (do _ *nome do iniciador*) e a ação do _ (*nome do respondente*) foram complementares.
    My (_ *name of the initiator*) action and _'s (*name of the respondent*) action were complementary.

34. A minha ação (do _ *nome do iniciador*) e a ação do _ (*nome do respondente*) foram congruentes entre si.
    My (_ *name of the initiator*) action and _'s (*name of the respondent*) action were mutually congruent.

35. A minha ação (do _ *nome do iniciador*) chocou com a ação do _ (*nome do respondente*). (reversed)
    's (*name of the respondent*) action clashed with my (*name of the initiator*) action.

Cognitive complementarity

36. A minha ação (do _ *nome do iniciador*) e a ação do _ (*nome do respondente*) foram ao encontro das expectativas de cada um.
    My (_ *name of the initiator*) action and _'s (*name of the respondent*) action successfully met each other's expectations.

37. Eu (_ *nome do iniciador*) e o _ (*nome do respondente*) vemos a nossa relação da mesma forma.
    _ (*name of the respondent*) and I (_ *name of the initiator*) see our relationship in the same way.

38. Eu (_ *nome do iniciador*) e o _ (*nome do respondente*) temos expectativas idênticas sobre o tipo de relação que temos um com o outro.
    _ (*name of the respondent*) and I (_ *name of the initiator*) have similar expectations about the kind of relationship we have with each other.

39. Eu (_ *nome do iniciador*) e o _ (*nome do respondente*) estamos a relacionar-nos um com o outro de forma diferente. (reversed)
    _ (*name of the respondent*) and I (_ *name of the initiator*) related with each other differently.

40. Eu (_ *nome do iniciador*) e o _ (*nome do respondente*) estamos na "mesma onda" sobre o modo de nos relacionarmos um com o outro.
    _ (*name of the respondent*) and I (_ *name of the initiator*) are on the same page about how to relate to each other.

41. Eu (_ *nome do iniciador*) e o _ (*nome do respondente*) fazemos diferentes suposições sobre o modo de nos relacionarmos um com o outro. (reversed)
    _ (*name of the respondent*) and I (_ *name of the initiator*) made different assumptions about how to relate to each other.

Appendix J

Scenarios (Study 2, Chapter 4)

Communal Sharing

Beneficial RelComp

Peter just moved in to a new apartment. It looked a bit dingy, so he decided to paint it himself. Since Peter didn't want to do it alone, he called his old friend John to ask for help.

Peter: - Hey John, how's it going? I'm planning to paint my apartment myself soon. Would you give me a hand?

Complementary	*John:* - Sure buddy, I'm happy to help!
Non-complementary AR	*John:* - Ok. We start at 7:00 am. Please have all the tools ready and pick me up at my place by 6:30. Don't be late.
Non-complementary MP	*John*: - Sure. I'll take about 40$ for the work.

Costly RelComp

Peter's old friend John just moved in to a new apartment. It looked a bit dingy, so John decided to paint it himself. When Peter figured out that John was planning to paint it all alone he called John to offer his help.

Peter: - Hey John, how's it going? You'll probably need a hand to paint the apartment. Do you want me to help you?

Complementary	*John:* - Yes, buddy, I could use some help, thanks a lot!
Non-complementary AR	*John:* - Yes, Peter. For the moment it seems I don't need you because I have another assistant. But I want you to be on standby, just in case. Please, don't make any plans for that day without talking to me first.
Non-complementary MP	*John*: - Sure, Peter. Great! In that case I'll pay you 40$ for half-day work.

Authority Ranking

Beneficial RelComp

Captain Miller has to deliver a routine report to the Major by tomorrow. Usually he is the one who writes that report but Lieutenant Smith, his First Lieutenant, has occasionally written it in the past. Therefore, since Captain Miller will be busy with other tasks, he decides to delegate the report to Lieutenant Smith.

Captain Miller: - Lieutenant Smith, there is something I need from you. This report is due tomorrow. Write it and send it to me as soon as possible.

Complementary	*Lieutenant Smith:* - Yes, Sir, I'll do that right away.
Non-complementary EM	*Lieutenant Smith:* - Ok, Sir. In that case I assume you will give me half a day off this week and then we're good…
Non-complementary MP	*Lieutenant Smith:* - Ok, Sir. In that case I assume I'll get paid overtime for working 3 to 4 extra hours...

Costly RelComp

Captain Miller has decided to delegate an important report to Lieutenant Smith, his First Lieutenant. Such responsibility will help Lieutenant Smith getting promoted. Since Lieutenant Smith is not familiar with this type of reports, Captain Miller is going to give him advice on where to get the critical information and how to present it.

Captain Miller: - Lieutenant Smith, I want you to start writing this report. It'll add significantly to your résumé. I'll start by showing you how to write such reports. We begin tomorrow. Meet me in my office by 9 am.

Complementary	*Lieutenant Smith:* - Yes, Sir. I'll be there.
Non-complementary EM	*Lieutenant Smith:* - Ok, Sir. In that case, I can show you how to use the new tracking software and we're good.
Non-complementary MP	*Lieutenant Smith:* - Ok, Sir. In that case, I can mention your support in the annual leadership-quality survey. It should be worth at least 2 points…

Equality Matching

Beneficial RelComp

Paul works in the HR department of a company and sometimes carpools with Michael from the Sales department, since they live in the same area. Michael is a salesman and is not always at the office. Whenever Michael goes to the office, he and Paul take turns driving each other. Today Michael went to the office and it was Paul's turn to drive. Therefore, next time Michael goes to the office it will be his turn to drive.

At the end of the day Paul drops Michael off at his place.

Paul: - Here we are, Michael!

Complementary	*Michael* – Thank's for the ride, Paul. I am going to the office tomorrow, so we go in my car. Shall I pick you up at the usual time?
Non-complementary AR	*Michael* – You're a great driver, Paul. I am going to the office tomorrow and I want to be there one hour earlier, so I'll pick you up at 6:30. Note that you have to get up earlier, so please be on time.
Non-complementary MP	*Michael* – Thank's for the ride Paul. We go in my car tomorrow. I have to take the Jeep, which consumes a lot. So I would like to ask you to bring $15 for gas and the ride. See you tomorrow.

Costly RelComp

Paul works in the HR department of a company and sometimes carpools with Michael from the Sales department, since they live in the same area. Michael is a salesman and is not always at the office. Whenever Michael goes to the office, he and Paul take turns driving each other. Today Michael went to the office and it was his turn to drive.

At the end of the day Michael drops Paul off at his place. During the trip Paul learns Michael is going to be at the office tomorrow, therefore, it will be Paul's turn to drive. Exceptionally, Paul does not have to be at the office before 10:00 tomorrow, but he does not mention that to Michael. In fact, Paul is still willing to wake up earlier and give Michael a ride.

Paul: - Thank's for the ride, Michael. We're going in my car tomorrow. I'll pick you up at the usual time.

Complementary	*Michael* – Oh, you're right, It is your turn. See you tomorrow
Non-complementary AR	*Michael* – Ok, Paul. But we're going later tomorrow. I want you to

	pick me up at 9:00 instead of 7:00, but no later than that. Please be on time.
Non-complementary MP	*Michael* – Ok, Paul. Here's 15$ for gas and the ride, before I forget…

Market Pricing

Beneficial RelComp

Phillip works at a company that fixes electrical household appliances and he went to visit a new customer, Jack, to fix his broken dishwasher. When Phillip finishes the job he prepares the bill for $80 and calls Jack.

Phillip: - Jack, I'm done here. It's working perfectly now.

Complementary	*Jack* (not noticing the bill)*:* - Ok, Phillip. That's great! How much do I owe you?
Non-complementary CS	*Jack* (not noticing the bill)*:* - Oh, I can't thank you enough buddy! It's so annoying to do the dishes by hand! Hey, why don't you come over for a beer sometime?
Non-complementary AR	*Jack* (not noticing the bill)*:* - Good job, Phillip. You should feel proud of yourself. I'll call you if it's not working properly. You can leave now; I'm very busy here.

Costly RelComp

Phillip has a broken dishwasher and called a company to fix it. The company sent a technician named Jack. When Jack tells Phillip the job is done, Phillip gets the money to pay Jack.

Phillip: - Ok, Jack. How much do I owe you?

Complementary	*Jack:* - It's $80.
Non-complementary CS	*Jack:* - Forget about it, buddy! You know, people should do what they can to help each other out.
Non-complementary AR	*Jack*: - It's nothing. Just doing my duty, sir. I hope you are pleased with the work. What should I do next, sir?

Appendix K

Syntax for the MLM (Study 2, Chapter 4)

```
MIXED DV BY IndexDV RMComb RM RelComp Benefit
/CRITERIA=CIN(95) MXITER(100) MXSTEP(10) SCORING(1) SINGULAR(0.000000000001)
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
/FIXED= IndexDV IndexDV*RM IndexDV*RelComp IndexDV*Benefit IndexDV*RM*RelComp IndexDV*RM*Benefit
IndexDV*RelComp*Benefit IndexDV*RM*RelComp*Benefit| NOINT SSTYPE(3)
/METHOD=ML
/PRINT=COVB G SOLUTION TESTCOV
/RANDOM= RMComb*RM | SUBJECT(Participant) COVTYPE(ID)
/REPEATED= IndexDV | SUBJECT(Participant*Scenario) COVTYPE(ARH1)

/EMMEANS=TABLES(OVERALL)
/EMMEANS=TABLES(IndexDV) COMPARE ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RelComp) COMPARE(RelComp) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*Benefit) COMPARE(Benefit) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RM_Index) COMPARE(RM) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RelComp*Benefit) COMPARE(RelComp) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RelComp*Benefit) COMPARE(Benefit) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RelComp*RM) COMPARE(RelComp) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RelComp*RM) COMPARE(RM) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*Benefit*RM) COMPARE(Benefit) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*Benefit*RM) COMPARE(RM) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RelComp*Benefit*RM) COMPARE(RelComp) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RelComp*Benefit*RM) COMPARE(Benefit) ADJ(BONFERRONI)
/EMMEANS=TABLES(IndexDV*RelComp*Benefit*RM) COMPARE(RM) ADJ(BONFERRONI)

/TEST = "Contrast at Liking at CS at CostlyComp"
IndexDV*RelComp  1 -0.5 -0.5   0 0 0   0 0 0   0 0 0   0 0 0   0 0 0   0 0 0   0 0 0   0 0 0
IndexDV*RelComp*Benefit 1 0 -0.5 0 -0.5 0    0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
IndexDV*RM*RelComp 1 -0.5 -0.5 0 0 0 0 0 0 0 0 0    0 0 0 0 0 0 0 0 0 0 0 0    0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0    0 0 0 0 0 0 0 0 0 0 0 0    0 0 0 0 0 0 0 0 0 0 0 0    0 0 0 0 0 0 0 0 0 0 0 0    0 0 0 0 0 0 0 0 0 0 0 0    0 0 0 0 0 0 0 0 0
0 0 0
 IndexDV*RM*RelComp*Benefit   1 0 -0.5 0 -0.5 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
                                                  0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
                                                  0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
                                                  0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
                                                  0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
                                                  0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
                                                  0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
                                                  0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
                                                  0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0   0 0 0 0 0 0
```

(…)

Table A1 – Comparison between models without (M0) and with (M1-M8) random effects, and between models without (M0, M1) and with (M2-M8) predictors

Model	**M 0**	**M 1**	**M 2**	**M 3**	**M 4**	**M 5**	**M 6**	**M 7**	**M 8**
Fixed Effects	IndexDV	IndexDV	IndexDV* RelComp	M2 + IndexDV *Benefit	M3 + IndexDV *RM	M4 + IndexDV* RelComp*Benefit	M5 + IndexDV *RelComp*RM	M6 + IndexDV *Benefit*RM	M7 + IndexDV* RelComp*Benefit* RM
Variance and Covariance of Residuals									
Repeated Effects									
RelComp	2.46 (.12)***	0.39 (.03)***	0.32 (.02)***	0.32 (.02)***	0.32 (.02)***	0.32 (.02)***	0.32 (.02)***	0.32 (.02)***	0.31 (.02)***
Positive Affect	3.35 (.15)***	0.72 (.04)***	0.69 (.04)***	0.69 (.04)***	0.69 (.04)***	0.66 (.04)***	0.64 (.04)***	0.63 (.04)***	0.60 (.03)***
Negative Affect (rev)	3.73 (.17)***	1.38 (.07)***	1.31 (.07)***	1.30 (.07)***	1.28 (.07)***	1.25 (.07)***	1.24 (.07)***	1.23 (.07)***	1.22 (.07)***
Control	1.92 (.09)***	0.57 (.04)***	0.55 (.03)***	0.55 (.03)***	0.51 (.03)***	0.50 (.03)***	0.48 (.03)***	0.48 (.03)***	0.47 (.03)***
Belonging	2.48 (.12)***	0.39 (.03)***	0.39 (.03)***	0.39 (.03)***	0.39 (.03)***	0.38 (.02)***	0.35 (.02)***	0.35 (.02)***	0.33 (.02)***
Trust	2.40 (.12)***	0.45 (.03)***	0.43 (.03)***	0.43 (.03)***	0.40 (.03)***	0.40 (.03)***	0.40 (.03)***	0.39 (.02)***	0.38 (.02)***
Meta-trust	1.62 (.08)***	1.19 (.07)***	1.02 (.06)***	1.01 (.06)***	0.99 (.05)***	0.93 (.05)***	0.92 (.05)***	0.84 (.05)***	0.76 (.04)***
Maintenance (rev)	2.31 (.11)***	0.39 (.03)***	0.38 (.02)***	0.38 (.02)***	0.38 (.02)***	0.38 (.02)***	0.38 (.02)***	0.37 (.02)***	0.38 (.02)***
Liking	2.16 (.10)***	0.98 (.06)***	0.89 (.05)***	0.89 (.05)***	0.84 (.05)***	0.83 (.05)***	0.81 (.05)***	0.81 (.05)***	0.77 (.04)***
Covariance (ARH1 rho)	0.78 (.01)***	0.18 (.02)***	0.17 (.02)***	0.17 (.02)***	0.17 (.02)***	0.17 (.02)***	0.17 (.02)***	0.18 (.02)***	0.19 (.02)***
Random Effects									
RMComb*RM	-	1.92 (.11)***	1.50 (.09)***	1.44 (.08)***	1.39 (.08)***	1.19 (.07)***	1.12 (.06)***	1.07 (.06)***	0.91 (.05)***
ICC	-	0.22	0.20	0.19	0.19	0.17	0.16	0.16	0.14
Parameters	19	20	38	47	74	92	146	173	227
-2 Log Likelihood	18,133.03	16,910.69	16,403.33	16,350.84	16,182.22	15,967.22	15,778.89	15,625.44	15,267.49
Proportional Reduction in Variance									
RelComp	-	84.27%	**17.20%**	0.07%	-0.38%	-0.90%	2.04%	-0.61%	3.02%
Positive Affect	-	78.62%	**3.81%**	0.02%	0.38%	**4.06%**	3.04%	1.74%	3.61%
Negative Affect (rev)	-	63.02%	**4.93%**	0.52%	1.96%	2.40%	0.83%	0.27%	1.15%
Control	-	70.03%	3.61%	1.59%	**6.96%**	0.57%	4.44%	0.93%	1.98%
Belonging	-	84.22%	-0.43%	-0.18%	1.21%	3.14%	**8.15%**	0.14%	5.79%
Trust	-	81.46%	3.36%	0.33%	**6.13%**	0.64%	0.74%	1.47%	3.55%
Meta-trust	-	26.67%	**14.06%**	0.76%	2.79%	5.23%	1.38%	9.11%	9.56%
Maintenance (rev)	-	83.05%	**3.27%**	0.28%	0.56%	-0.79%	-0.78%	2.09%	-1.89%
Liking	-	54.71%	**8.76%**	0.53%	5.44%	0.97%	1.94%	0.15%	4.97%
RMComb*RM	-	-	**22.04%**	3.97%	3.09%	15.00%	5.80%	4.08%	14.98%

Parameter estimate standard errors listed in parentheses. *** $p < .001$.

Appendix L

Scenarios (Study 3, Chapter 4)

Market Pricing

Beneficial RelComp

Phillip is an authorized appliance service technician working at a repair company. The company sent him to visit a costumer, Jack, to fix his broken dishwasher, which is out of the warranty for about a year.

Phillip finds the problem with expertise and repairs it. When he finishes, he tries the equipment to make sure it works – and it does. He prepares the bill for $100, according to the pricing standards of his company, and informs Jack, who is in the next room making some calls.

Phillip: - Jack, I'm done here. It's working now.

Complementary	*Jack* (not noticing the bill)*:* - Ok, Phillip. That's great! How much do I owe you?
Non-complementary CS	*Jack* (not noticing the bill)*:* - Oh, I can't thank you enough buddy! It's so annoying to do the dishes by hand! Hey, why don't you come over for a beer sometime?
Non-complementary AR	*Jack* (not noticing the bill)*:* - Good job, Phillip. You should feel proud of yourself. I'll call you if it's not working properly. You can leave now; I'm very busy here.

Costly RelComp

Phillip has a broken dishwasher which is out of the warranty for about a year. He called a few repair companies and did some homework about the average cost of such service. Phillip estimated the repair cost should range between $80 and $150 and made an appointment with the company that seemed most reliable at a competitive price. The company sent an authorized technician named Jack.

Jack finds the problem with expertise and repairs it. When Jack tells Phillip the job is done, Phillip gets the money to pay Jack.

Phillip: - Ok, Jack. How much do I owe you?

Complementary	*Jack:* - It's $80.
Non-complementary CS	*Jack:* - Forget about it, buddy! You know, people should do what they can to help each other out.
Non-complementary AR	*Jack*: - It's nothing. Just doing my duty, sir. I hope you are pleased with the work. What should I do next, sir?

Appendix M

Scenarios (Study 4a, Chapter 4)

The following scenarios are translated from the Portuguese version.

Authority Ranking

Sara is Manuel's assistant. Manuel is the Sales Manager of a retail company and he has to deliver a routine report to the CEO every two weeks. Sara knows such report very well.

As Manuel is too busy with the inauguration of two new shops he asked Sara to write the report.

Manuel: - Sara, I'd like you to write this report and send it to me tonight, so that I can read it and send it in the morning.

Sara feels perfectly capable of writing it and she is free tonight. Hence, she took the task.

Sara: Yes, sir. I'll do it."

Complementary	That night Sara finished the report and sent it by e-mail to Manuel.
Non-complementary Uncontrollable	That night, when the report was almost complete, some virus crashed Sara's computer and stopped her from finishing. After several unsuccessful trials she gave up and decided to send an e-mail to Manuel explaining the situation.
Non-complementary Controllable	That night, when Sara was having dinner, she started watching one of her favorite movie on TV. Sara fell asleep on the couch. In the morning she noticed she hadn't done the report.

Equality Matching

Rui lives with a roommate called Pedro. Rui and Pedro usually take turns to buy food, especially the most common things, such as, milk, butter, bread, eggs. However, when it comes to more specific products, such as, yogurts or cookies, each one buys and consumes his own food. For that reason, Rui and Pedro have the rule that in case one of them eats the other's cookies or yogurts, he should replace it within one or two days.

Rui has run out of food and since Pedro always has yogurts in the fridge to take to college, he decided to ask permission to eat a yogurt.

Rui: – Pedro, can I eat one of your yogurts?

Pedro: – Yes, but I have my yogurts counted for the week; since they are the last ones I have and I am not going to have time to go shopping, meanwhile, I need you to buy me more tomorrow, ok? Otherwise, I'll be without yogurts to take to college…

Rui: - OK, deal!

Complementary	The next day, as soon as he left his classes, Rui went to the grocery store and bought yogurts. When he arrived home he put the yogurt he owed to Pedro, in the fridge, in Pedro's shelf.
Non-complementary Uncontrollable	The next day, as soon as he left classes, Rui went to the campus gym, has usual; except this time he tried a new workout and hurt his foot very seriously. He had to go to the nearest hospital immediately. Since he returned home late and with his foot immobilized, Rui was not able to buy Pedro's yogurt.
Non-complementary Controllable	The next day, as soon as he left classes, Rui went to the campus gym, has usual; except this time he tried a new workout and stayed until later. When he arrived home, Rui noticed he had forgotten to buy Pedro's yogurt.

Appendix N

Scenarios (Study 4b, Chapter 4)

The following scenarios are translated from the Portuguese version.

Communal Sharing

Sara's brother, Manuel just moved in to a new apartment. However, since the apartment looked a bit dingy, Manuel decided to paint it herself. Since Manuel didn't want to do it alone, he called his sister Sara Tiago to ask for help.

Manuel: - Hey Sara, how's it going? I'm planning to paint my apartment myself next month, in the 25th. It's Saturday and the idea is to start around 9h30. Would you give me a hand?"

Sara: - Of course! I will help you with pleasure. I'll be there.

Complementary	The day before the painting Sara went to bed early. The next day by 9h30 she was at Manuel's place to help him.
Non-complementary Uncontrollable	The day before the painting Sara felt ill and started vomiting. She went to the hospital emergency suspecting food poisoning. She went back home by 5h am. Feeling week and advice by the doctor to rest she could not help Manuel.
Non-complementary Controllable	The night before the painting Sara went for a drink with some friends. She drank too much and got distracted with the time. She went back home by 5 am feeling tired and with a hangover. Dizzy and vomiting she could not help Manuel.

Market Pricing

Rui is the tenant of an apartment that belongs to Mr. Pedro. The rent is usually paid through bank transfer. Mr. Pedro is in the process of changing to a new bank and he is going through unexpected bureaucratic hurdles. In order not to wait for the new operational bank account, Mr. Pedro asked Rui to make the payment in cash, exceptionally, this month.

Today is due another rent and Mr. Pedro calls Rui to settle the payment details.

Pedro: - Good morning Mr. Rui. I want to remind you to pay this month's rent in cash as we talked before, and to ask you to leave the money in the mail box until 20h today. I'll stop by at that time, ok?

Rui: – Of course, Mr. Pedro. Agreed.

Complementary	During the day, after visiting a client, Rui headed to the closest bank by his office to withdraw the cash. When he arrived home he left the money in his mail box inside an envelope, as agreed.
Non-complementary Uncontrollable	During the day, after visiting a client, Rui headed to the closest bank by his office to withdraw the cash. On his way home, there was a car accident and he got stuck in traffic for more that one hour. When he arrived at the bank, it was already closed and there was no other way to get the cash that day.
Non-complementary Controllable	During the day, after visiting a client, Rui headed to the closest bank by his office to withdraw the cash. On his way home he stopped by Fnac to buy tickets to a concert next day and got distracted with the novelties. When he arrived at the bank, it was already closed and there was no other way to get the cash that day.