



Department of Social and Organizational Psychology

Communal Sharing and Gratitude: How They Interrelate

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

Cláudia Patrícia Candeias Simão

Supervisor:

Dr. Beate Seibt, Associate Professor,

Department of Psychology, University of Oslo, Norway, and Instituto
Universitário de Lisboa (ISCTE-IUL), Centro de Investigação e Intervenção Social
(CIS-IUL), Lisboa, Portugal

Co-Supervisor:

Dr. Simone Schnall, University Senior Lecturer,

Department of Psychology, University of Cambridge, United Kingdom

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Jury Composition:

Doctor Sven Waldzus, Associate Professor with Habilitation, Instituto Universitário de
Lisboa (ISCTE-IUL), Portugal

Doctor Rodrigo Brito, Associate Professor, Universidade Lusófona, Portugal

Doctor Tânia Ramos, Researcher, Faculdade de Psicologia e Ciências da Educação,
Universidade de Lisboa, Portugal

Doctor Rui Costa Lopes, Researcher, Instituto de Ciências Sociais da Universidade de
Lisboa (ICS), Portugal

Doctor Beate Seibt, Associate Professor, University of Oslo, Norway, and Instituto
Universitário de Lisboa (ISCTE-IUL), Portugal

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Resumo

Os indivíduos encontram diariamente amigos, vizinhos, colegas, ou superiores. Estas interações sociais exigem a necessidade de pensar, sentir e comportar-se em cada encontro. A Teoria dos Modelos Relacionais (Fiske, 1992) alega que, para estruturar o mundo social, são utilizadas quatro categorias mentais de relações sociais. A comunhão é uma dessas categorias, representando relações de proximidade formadas através de assimilação consubstancial, como partilhar comida, ou o toque para aumentar a proximidade. A comunhão está relacionada com apoio dentro da relação, existindo, muitas situações propícias a gratidão. Assim, a presente investigação foca-se na relação entre pistas de comunhão, percepção de relações sociais e gratidão. Primeiramente testou-se se os benefícios intencionais levam à implementação de um modelo de comunhão e ao aumento da gratidão. Os resultados revelaram que os benefícios aumentam a gratidão à medida que é implementada comunhão e não igualdade ou hierarquia. Os benefícios ativam diretamente relações de comunhão e indiretamente gratidão. Em segundo, testou-se se a gratidão é mentalmente ativada em conjunto com o modelo de comunhão. Com a ajuda de um comparsa, manipulou-se o toque amigável, como uma pista de comunhão. Os resultados mostraram que os participantes recipientes de toque sentiram mais gratidão para com o comparsa do que aqueles que não receberam toque. Para além disso, a percepção da interação como comunhão mediou a relação entre toque e gratidão. Em suma, a investigação descrita apoia a representação mental de comunhão através de pistas de comunhão. Adicionalmente alarga a definição do conceito de gratidão como uma emoção que pode ser ativada através das relações de comunhão.

Palavras-chave: Comunhão, benefícios, toque, gratidão, teoria dos modelos relacionais, cognição *corporalizada*

Abstract

Individuals meet friends, neighbors, colleagues, or superiors every day. Social interactions demand the understanding of how one should think, feel, and behave in every encounter. The Relational Models Theory (Fiske, 1992) claims that, to structure and organize one's social world, people have four mental categories of social relationships. Communal sharing is one of the categories representing relationships of closeness, based on consubstantial assimilation. Individuals eat together, share what they have, or use physical touch to feel close. Communal sharing concerns support and being attentive to needs, therefore, many situations are likely to activate gratitude. Thus, the current research focuses on the perceptions of social relationships and their influence on gratitude. First, I tested the prediction whether non-contingent benefits are a cue to communal sharing or to gratitude. Results consistently revealed that benefits increase gratitude to the extent to which one applies a communal sharing model and not equality matching or authority ranking. Therefore, non-contingent benefits directly activate communal sharing and indirectly gratitude. Second, I tested the prediction that communal sharing cues increase gratitude. Thus, a friendly touch, manipulated by a confederate, was used as a cue to induce communal sharing. The results showed that participants who received a friendly touch indicated more gratitude than those who did not. Moreover, perceiving the relationship as communal sharing mediated the link between touch and gratitude. Altogether, this research supports the representation of communal sharing by communal cues. Additionally, it broadens up the definition of gratitude as an emotion activated by communal sharing relationships.

Key-words: Communal sharing, benefits, touch, gratitude, relational models theory, embodiment

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CHAPTER 1: Benefits, Gratitude, and Communal Relationships

Social emotions and social relationships are closely interrelated. Particularly, positive social emotions are especially important in the regulation and maintenance of enduring social relationships. However, different positive emotions have different social regulatory functions. For example, pride creates the need to share new personal achievements with others. Elevation motivates prosocial and affiliative behavior. Gratitude increases investment in a social relationship with a benefactor.

Feeling grateful has been associated with benefits. Specifically, those benefits which are responsive to one's needs are suggested to trigger gratitude. Consequently, gratitude functions to invest or to maintain a relationship as communal. But benefits also motivate communion. The giving and accepting of benefits influence how one is willing to interact with relational partners. Not keeping track of what is given and received suggests a communal intention toward the relational partner. Thus, if benefits signal relational intentions, but only responsive benefits predict gratitude, then I predict that non-contingent benefits should be a cue for communal sharing because of its kind nature. The link between non-contingent benefits and gratitude should happen via communal sharing. The kind nature of non-contingent benefits activate the feeling of being cared for, or having a relational partner concerned with one's needs.

In this dissertation, I argued that benefits trigger the intention to establish a communal sharing relationship with a relational partner. Additionally, I suggested that gratitude can be embedded in communal sharing relationships. This perspective challenges the assumption that gratitude is an outcome of benefits, specifically

responsive benefits. Therefore, the current research program investigates if gratitude is indeed motivated by benefits (Chapter 2) or by communal sharing relationships (Chapter 3).

The present dissertation was organized in four chapters. In the first chapter (Chapter 1) I started by contextualizing emotion as a concept, introducing appraisal theories of emotions. Specifically, I focused on the Cognitive-Motivational-Relational approach, developed by Lazarus (1968). This approach was particularly important for appraisal theories, once it considered the appraisals as relational, meaning that emotions were products of the interaction between person-environment (Section 1). Next, in Section 2, I presented the definition of gratitude, its antecedents (associated appraisals) and its consequences. Here, the importance of benefits as situational appraisals was used to link Section 2 to Section 3, explaining the role of benefits in social relationships. In Section 3, I explored two different theories of social relationships. First I explained the Theory of Relationship Orientation, from Clark and Mills, (e.g., 1979) and next I introduced the Relational Models Theory, from Fiske (e.g., 1992). Because the latter is a more integrative approach to social relationships, I construed my claims based on its assumptions. Thus, benefits should trigger communal sharing intentions, and communal sharing should increase gratitude. Moreover, I also suggested that perceiving communal sharing intentions through communal cues (e.g., hugging or caressing someone) should activate gratitude via applying a communal sharing model with a relational partner. Finally, in the Section 4, I presented my theoretical predictions in detail, as well as the research program used to investigate them.

The two following chapters are empirical chapters. In Chapter 2, I presented three studies to test the prediction that, after having received a benefit, gratitude was predicted by the communal sharing model, and not by any other relational models.

Based on previous research, (reviewed in Chapter 1, Section 2.1), gratitude should not be a product of benefits in general, but a product of responsive benefits. Responsive benefits entail communal intentions (reviewed in Chapter 1, Sections 3.1, 3.2). Thus, the application of a communal sharing model with a partner should be based on previous experiences and relational knowledge, enabling individuals to activate relational expectations which match the same applied model (emotions, cognitions and behaviors; reviewed in Chapter 1, Section 3.2).

Following, in Chapter 3, I tested the assumption that, once communal sharing relationships can be simulated through perceptual symbols, that would be sufficient to trigger gratitude without any obvious benefits (reviewed in Chapter 1, Section 3.2.1). This assumption brings along the idea that people can feel grateful for having communal relationships. Thus, I presented one study which tests the idea that a friendly touch, suggested as a communal sharing cue, would trigger feelings of gratitude via perceived communal sharing model applied with a stranger.

Finally, in Chapter 4, I presented a summary of the main findings, trying to integrate them in a general discussion. In this section, I highlighted the contributions of the present research, and discussed the impact of this research, as well as its importance at social relationships and social emotions levels. Additionally in this chapter, I presented several limitations of this work, and future directions for research which can be conducted under this topic.

1.1. A Brief Introduction to Emotions

Imagine the following situation: Your computer crashes down suddenly, and you have an important deadline to meet in two hours. You try to fix the problem, but the computer seems to be completely dead. A colleague, who just noticed you are having

trouble, tries to give you a hand with the computer and sees whether she can fix it. However, there is no way of solving the problem. She kindly tells you to use her computer, so you can finish what you need. When you are done, you tell her how grateful you feel toward her. She saved your day! But would you still feel grateful toward someone who, after the two-hour period, would charge you a fee for using the computer? This is the starting point of the current thesis: whether the perception of a relationship could influence the emotional outcome of gratitude.

Gratitude is an emotion triggered by beneficial situations (e.g., Algoe, 2012; McCullough, Kimeldorf, & Cohen, 2008), but not every beneficial situation triggers gratitude (Tsang, 2006). Then, what is it that activates gratitude? Emotions have been an interesting, and sometimes controversial topic. But, despite controversy, researchers seem to agree on some domains which define the concept. For example, the fact that emotions follow situational appraisals (Izard, 2010). Imagine again, someone lending you a computer, and charging you money at the end. You have benefited: you could work and meet the deadline you needed to meet. Why, then, not feeling grateful toward the person? The interpretation of situations dictates what one should feel, and that sometimes happens suddenly, but how does that happen? Therefore, it is important to first understand how emotion is defined as a concept.

1.1.1. What is an Emotion?

The interest about why people feel what they feel and how does that happen is ancient. Philosophers characterized emotions as uncontrollable and impulsive states, thus, a threat for reason (Solomon, 2008). Charles Darwin suggested a universal component to emotional expressions; William James wondered about “What is an emotion?”, highlighting the importance of perception of facts and their associated physiological changes to experience an emotion (James, 1884). Many advances have

been made to clarify the concept of emotion, but defining emotion does not seem to be such a simple task.

Over the past century, at least 92 definitions for emotion as a concept were proposed (Kleinginna & Kleinginna, 1981). This controversy in the field motivated Izard (2010) to ask a group of researchers, who made important theoretical and empirical contributions to the field of emotions, the same question: “What is an emotion?” Researchers were invited to explain what they have concluded about the nature of emotion. Even nowadays, the definition of emotion remains nonconsensual. However, there is agreement about the fact that emotion has different components, and each emotion is unique. Therefore, an “emotion consists of neural circuits, response systems, and a feeling state/process that motivates and organizes cognition and action. Emotion also provides information to the person experiencing it, and may include antecedent cognitive appraisals and ongoing cognition, including an interpretation of its feeling state, expressions or social-communicative signals, and may motive approach or avoidance behavior, exercise control/regulation of responses, and be social or relational in nature” (Izard, 2010, p. 367).

As important as understanding what is an emotion, it is to understand what an emotion is for. Appraising a dangerous situation, might end up in activating the emotion of fear. Fear prepares the body to escape – either to run away or to hide from the danger. As shown in the example, emotions involve a change in action readiness: part of the emotional reaction can be a preparation of approach or avoidance behavior, but also a loss of interest (Frijda, 1988). It thus seems plausible that the function of emotions is to prepare individuals for action. However, where does the action readiness come from? The Evolutionary Theory of Emotions (e.g., Cosmides & Tooby, 2000; Tooby &

Cosmides, 1990) seems to be a plausible explanation to understand what an emotion is for.

1.1.2. What is an Emotion For?

Evolution is a process whereby variation, heredity and natural selection lead to shifts in the prevalence of traits in a population. In particular, those traits get selected and become more frequent that increase the owner's fitness. Higher fitness means a higher chance of survival and healthier offspring. If emotions were selected for during evolution, then they must therefore have increased the fitness of those who have emotions. There is good evidence that many emotions already evolved in other animals prior to Homo sapiens. For example, many mammals like mice and rat show clear physiological signs of fear. However, we know very little about positive social emotions in animals. But we know that humans are hyper-social animals, and it is assumed that humans have lived in cooperative groups since they emerged as a species (Wilson, 2012). Therefore, we can expect evolutionary adaptations in humans to the opportunities and dangers of social life.

New traits are selected either because they increase fitness in the current environment or because they are adaptations to an environmental change. In the case of social emotions, increasingly cooperative groups would represent a changing environment that confers advantages to those who participate in cooperation and social relationships (Fiske, 1991). The development of social emotions can, therefore, be assumed to be an adaptation to recurrent problems that can be solved with the help of action programs specific to the emotion (Tooby & Cosmides, 1990). In their theory on the evolution of emotions, Tooby and Cosmides (1990) assume that every strategy used to overcome a problem is an independent program. Thus, human brains come equipped with many domain-specific programs. Each of them is evoked by different situational

triggers. Emotions are suggested to be evolved superior programs, or master programs, useful to activate or deactivate the appropriate programs to conduct action (Cosmides & Tooby, 2000). For example, sometimes, one problem's solution requires the activation of more than one program. If some programs are simultaneously activated they can conflict with one another, interfering with each other. Imagine you are ready to sleep, and you hear some unexplainable noise. If you find no explanation for that noise, then you suddenly are completely awake, aware of every little sound. It might be someone trying to get into your house. Fear activates your awareness and deactivates your sleepiness (Tooby & Cosmides, 2010).

Therefore, emotions are universal responses to specific situations, which evolved because they increased success at reproduction, offspring protection, alliances' maintenance and avoidance of threats (Keltner, Haidt, & Shiota, 2006). They fulfill this function by coordinating subprograms such as perception, attention, inference, learning, goals, motivation, physiological reactions, reflexes, facial expressions, or behavior (Cosmides & Tooby, 2000). Emotion programs are likely to have evolved for: a) ancestrally and repeatedly important situations; b) problems that could not be successfully solved without the coordination of the emotional superordinate program; c) any error that could result in large adaptive costs; and d) situations which had recognizable cues signaling their presence (e.g., Tooby & Cosmides, 2010). This means that an emotion-eliciting situation is activated by cues which guide the interpretation of events. For example, when individuals have limited or no access to perceptual evidence, they can fill in the gaps by using cues to make inferences and these inferences will activate emotional responses (Tooby & Cosmides, 2005). Specifically, different emotions can be activated by different recognizable cues, each cue as an evolved sign to

deal with specific repetitive encounters (Nesse & Ellsworth, 2009; Tooby & Cosmides, 2010).

Social interactions need constant regulation: non-verbal and verbal reactions to others, co-acting, decision making, and own actions. Social emotions developed to regulate our social behavior in an intuitive and fast manner (Cosmides & Tooby, 2000; Keltner et al., 2006). As such, they can be thought of as adaptations to our social environment, increasing our ability to coordinate, to start, sustain and repair social relationships. As mentioned before, situations and cues have to have been encountered repeatedly in our evolutionary past, else there would have been no selection pressure for the adaptation (e.g., Cosmides & Tooby, 1994, 2005; Nesse & Ellsworth, 2009; Tooby & Cosmides, 1990, 2010). This means that our social emotions are adaptations to recurring social problems at a period when we were hunters and gatherers, living in small groups rather than in large societies. This fact is well documented for the case of fear, because we are prepared to fear ancient sources of harm such as spiders and snakes, not guns and cars (Haselton & Ketelaar, 2006).

However, there is still a lot of uncertainty surrounding human social organization in hunter and gatherer times, so it is difficult to derive emotional profiles from these models. Nevertheless, it is generally assumed that human social organization has become more complex, but that the basic challenges of building, maintaining, and repairing social relationships have remained qualitatively similar (see Fiske, 1992). This suggests that we should be able to find specific situational triggers and action programs associated with different social emotions, and that these action programs are still functional for coordinating social relationships. Appraisal theories have been developed for the last 50 years to identify specific triggers for each emotion. They share the assumption that it is not the objective situation that triggers the emotion, but the

subjective appraisal of that situation (C. A. Smith & Lazarus, 1990). Next, I will describe appraisal theories that make assumptions about the triggers and functions of social emotions, in particular, gratitude.

1.1.3. Appraisal Theories

Appraisal theories started to grow in the second half of the last century, after the Second World War, when many soldiers started to show post-traumatic stress symptoms as a consequence of war scenarios. The symptoms of stress and inability to adapt suggested an involvement of emotional states, given the role emotions play in interpreting stressful events. That was the starting point for most appraisal theories: the interpretation of events. Emotions would have to be triggered by something, and that would be the evaluation of a certain situation. This evaluation was viewed as a universal process, appraising the significance of an event for one's personal well-being (Lazarus, 1993). Thus, beliefs and previous knowledge based on past experiences would be useful to represent one's social world, serving as the main support to appraisals. Emotions would be the outcome of a situational appraisal (C. A. Smith & Lazarus, 1990).

Several overlapping appraisal approaches emerged at that time, explaining components of discrete emotions, even though many of them recognized a common appraisal ground (Lazarus, 1993; Scherer, 1993). Overall, there was convergence on some aspects of the appraisal process. Thus, an appraisal needs motivations to attain a goal. If there is no goal, then, there is no emotion. Appraisals attribute valence to emotional reactions. An event which is optimal to attain a goal will trigger a positive emotion, whereas an event which is appraised as unfavorable to attain a goal will trigger a negative emotion. Appraisals also need a responsibility-target: either the self, or the other, or the circumstances (e.g., Frijda, 1988; Lazarus, 1993; Roseman, Spindel, & Jose, 1990; Scherer, 1984). All these appraisal theories contributed to better understand

emotions as processes derived from cognition (Lazarus, 1984). However, Richard S. Lazarus introduced an interesting adaptive-appraisal approach (Lazarus, 1984; C. A. Smith & Lazarus, 1990), considering the person in relationship with his or her surrounding environment, which is mainly composed of other individuals (Lazarus, 2006).

The appraisal theory proposed by Lazarus (1968; C. A. Smith & Lazarus, 1990) considers a Cognitive-Motivational-Relational approach to every adaptation encounter. *Cognition* refers to the need people have to evaluate each situation, attributing personal significance to events based on previous knowledge; *Motivation* regards the personally relevant goals, and their attainability, considering the individual resources and situational demands; Moreover, the appraisal is *relational*, given that each emotion is driven by the interaction between person-environment, involving harms (triggering negative emotions) or benefits (triggering positive emotions). Thus, any relationship person-environment has specific *core relational themes*, and each core relational theme is responsible for each distinct emotion. A general appraisal (e.g., hopelessness causes sadness) driven by core relational themes is described as a *molar* level of analysis – the first glance at the situation. After identifying the event, one will need to appraise in detail what is happening in the environment. Therefore, one needs a *molecular* level of analysis, decomposed into primary (social and environmental conditions) and secondary (coping strategies) patterns of appraisals (Lazarus, 1991).

Primary appraisals concern one's personal well-being. When perceiving an encounter, one appraises the social and environmental conditions – this appraisal allows categorizing the same encounter either as harmful or beneficial. Threat is an outcome of anticipated harm, whereas challenge is an outcome of a potential mastery or gain. However, one also appraises the same encounter based on one's own psychological

characteristics. Motivational states (or goals) are one of the most important psychological conditions to establish primary appraisals (Lazarus & Folkman, 1987). The *goal relevance* of an encounter helps to understand if there is anything at stake. If it does, then the relevance of the goal will determine the intensity of the triggered emotion. The *goal congruence* or *incongruence* relates to whether the encounter is appraised as harm or benefit. The *type of ego involvement* regards which kind of goal (e.g., self-esteem, moral values, life goals, etc.) is at stake or the role of each goal determining an emotion.

Secondary appraisals are related to coping strategies, or the resources one has to cope with, at the encounter. It considers *blame* or *credit* to deal with attribution of responsibility for the harm, threat, challenge or benefit perceived in the encounter. *Coping potential* is characterized by the belief that one is (or is not) able to diminish or extinguish a harmful or a threatening event or one can (or cannot) improve a challenging or a beneficial encounter. *Future expectations*, which can be positive or negative, appraised whether there will be a change in the person-environment relationship (Lazarus, 1991, 1999, pp. 91–94; C. A. Smith & Lazarus, 1990).

Overall, the appraisal of an encounter concerns the individual's previous knowledge and beliefs about his or her representation of the world. Personality factors, such as needs, goals, attitudes and so forth, jointly with the situational construal, are an important guidance key to the appraisal process. The emotional response is the outcome of the whole appraisal process (C. A. Smith & Lazarus, 1990). Therefore, the significance of the event is a central construct – each different emotion is triggered by a different concern, and its attributed personal significance (Lazarus, 1993). Moreover, each discrete emotion is the result of a different relational meaning. For example, *having transgressed a moral imperative* will lead to guilt, whereas *confronting an*

immediate, concrete and overwhelming physical danger will lead to fright. However, individuals may differ on the events that trigger each emotion, and that only happens because of significance: personal histories, or what is at personal stake when facing an encounter (Lazarus, 2006).

Nevertheless, the personal significance printed in an encounter is full of social context. As suggested by Lazarus (2006), personal significance is the background area of an emotional appraisal. Therefore, Hareli and Parkinson (2008) proposed that most emotions are social in nature, triggered by social situations, happening in interaction with other people. Thus, the authors argued that most emotions serve social purposes, because their appraisal is based on a social concern useful to assess social relevant events.

In sum, Lazarus (e.g., 1984) suggested a dynamic appraisal approach, where the interaction between person and environment was considered crucial for every appraisal. Additionally, emotions should not be perceived as something independent of their social context. Fear can be one example of how the same emotion can be either social or non-social. Fear's core relational theme is danger (e.g., C. A. Smith & Lazarus, 1990), which sometimes is social: your child does not come home at the expected time and you fear that something could have happened to her; other times is non-social: you cannot sleep because you heard some unexplainable noise and you fear to be unsafe. However, some emotions only happen within a social environment. These are social emotions: emotions which are triggered by appraisals of social concerns. Social appraisals are appraisals that have evolved to deal with issues concerning other people, such as social comparison, consideration of norms and social judgments (Hareli & Parkinson, 2008).

Appraisal theories assume that the cues for evoking emotions are appraisals of events, assumptions and evaluations about those events. Concerning gratitude, Lazarus' appraisal theory, which is most explicit on the appraisals underlying gratitude, claims that gratitude's core relational theme is the appreciation for an altruistic gift. By gift, it is meant anything given to a recipient, that can be something material, emotional or social support (Lazarus, 2006). However, appraisal theories focused more on the antecedents of emotions and less on their functions. Next, I will review the most important theories specifically on gratitude, which aim at explaining both, the eliciting conditions of gratitude as well as the functions and effects of gratitude.

1.2. Defining Gratitude

Historically, gratitude has always been associated to most of the world's religions. One should express his or her gratitude to God, as a way to show appreciation of all kinds of gifts in life (Emmons, 2004). However, gratitude is not only about religion: people can feel grateful for many things in life. Therefore, during the last decade, gratitude grew full of interest in scholars, helping to expand the definition of the concept and its functions.

As suggested above, gratitude was about appreciation for receiving gifts, or benefiting anyhow. When defining the concept of gratitude, Fritz Heider (1958) brought up the importance of benefits. To feel grateful one would have to be intentionally provided with a valuable benefit. The perception of the benefit's intent would have to be perceived as positive, otherwise the benefit could generate a different feeling from gratitude. This operationalization of benefits allowed starting to test empirically the concept of gratitude. Tesser, Gatewood and Driver (1968) manipulated intention, value and costliness of a benefit using vignettes and they measured feelings of gratitude in a

sample of undergraduates. The authors found that gratitude was dependent on the intentionality and value of benefits, but not so much on cost. Cost seemed to be a less stable component of gratitude, given that it involves less the self.

Later, praiseworthiness was introduced as an important component in the same equation. It was not only about providing an intentional and valued benefit, but the benefit itself would have to be praiseworthy (Ortony, Clore, & Collins, 1988, p. 148). Recently, gratitude was defined as an emotional response to someone else's prosocial behavior. It is categorized as moral affect, given it is derived (and influences) moral behavior from (and toward) others (for a review, see McCullough, Kilpatrick, Emmons, & Larson, 2001). McCullough and colleagues identified three moral functions of gratitude: moral barometer, moral motive, and moral reinforcer. Gratitude as a *moral barometer* meaning that gratitude is an affective state, which allows perceiving changes in social relationships resulting from having benefited from a moral agent. Hence, gratitude is triggered when facing a situation where one is the target of a benefit that is valuable, intentional, costly and not dependent on relational obligations. Gratitude, just like a barometer, signals the moral agent's intentions to augment one's wellbeing and activates the perception that something might be changing in the social relationship. Gratitude as a *moral motive* concerns the idea that gratitude acts as a motivation to become a moral agent. Being the target of a benefit will motivate the beneficiary to behave prosocially, and benefit back the moral agent (or other agents) in the future. Expressions of gratitude as *moral reinforcers* are related to the fact that expressing feelings of gratitude to a benefactor will increase the likelihood of a benefactor to behave prosocially again (McCullough et al., 2001, 2008).

The act of being provided with a benefit is important to feel gratitude and gratitude in its turn, influences relational outcomes. However, recent research findings

on gratitude launched the assumption that it is not necessarily true that every benefit predicts gratitude. The benefit has to be thoughtful of the benefactor toward the beneficiary (for a review, see Algoe, 2012). A research program conducted by Algoe, Haidt and Gable (2008) investigated whether gratitude would be driven by provision of benefits and whether it would have relational consequences. During one week, new members of a sorority group (Little Sisters) were provided with benefits from an anonymous old member (Big Sisters). Every day, during that week, Little Sisters were asked to complete an online questionnaire about their feelings, the provided benefit, and about the anonymous Big Sister. In the Revelation Day, Big Sisters revealed their identity to Little Sisters, and both were asked to fill out a questionnaire about how they felt toward each other. One month later, Big and Little Sisters were again asked to report their feelings about each other and their relational status. Results revealed that, in order to feel gratitude, more important than the act of benefiting was the thoughtfulness of the benefit itself. Gratitude was not predicted by benefits in general, but by thoughtfulness of the benefactors. Moreover, the average of gratitude felt by Little Sisters during that week predicted relationship quality toward the Big Sisters one month later (Algoe et al., 2008).

Thus, these findings narrowed the type of benefits that increase gratitude. Benefits which elicit gratitude are those that meet the beneficiary's needs. To elicit gratitude, the provided benefits have to be welcomed by the beneficiary. Algoe and Stanton (2012) tested this prediction in a sample of women with metastatic breast cancer. Cancer patients, generally go through a fragile situation, and are more likely to be provided with several welcomed and unwelcomed benefits. The authors found that participants only felt grateful for benefits when they were not perceived to be tied to an unwanted obligation, and when they felt the benefactor was responsive to their needs.

The *Find, Remind, and Bind Theory* (Algoe, 2012) highlights the importance of perceived responsiveness to feel gratitude. Gratitude is a response to perceived responsiveness to one's needs via a benefit (Algoe et al., 2008). The perceived responsiveness makes the benefactor "stands out of the crowd", being identified (*find or remind*) as a "high-quality" relational partner. It signals that this relational partner cares for one's needs. Thus, it is necessary to perform a readjustment of predictions at the level of emotional experience. For example, a certain situation (e.g., getting unexpected help) is appraised and results in gratitude. This experience of gratitude can trigger a revisit to the situation appraisal in order to include the relational partner in the first appraisal (e.g., it is really nice that this person had done this for me). Accordingly, the appraisal readjustment allows the experience of gratitude to update the relational status of the relational partner. This step can influence the need to bind with, or to feel close to the benefactor (Algoe, 2012).

Thus, the social function of gratitude is to improve interpersonal relationships, increasing warmth and affection toward the benefactor (Algoe et al., 2008; Haidt, 2003). Previous evidence supports this claim: Feeling grateful motivates relationship-building. Beneficiaries have the willingness to invest in a positive relationship (Algoe & Haidt, 2009). In romantic relationships, gratitude is suggested to increase relationship satisfaction with the romantic partner (Algoe, Gable, & Maisel, 2010). The same pattern was found in an economic exchange context. Using the Give Some Dilemma Game, which pits self-interest against communal interest, participants were told they would be playing against another person (confederate) who had helped them beforehand (*versus* not). Beneficiaries reported feeling more grateful, and made more cooperative decisions, increasing the communal interest at the expenses of their own profit than non-beneficiaries. The self-reported gratitude mediated the link between benefit and

communal interest (DeSteno, Bartlett, Baumann, Williams, & Dickens, 2010). In line with these arguments, Lambert, Graham, and Fincham (2009) asked participants to generate words they associated with the concept of gratitude (Study 1), and to a different sample of participants to rate each of the words on their centrality to gratitude (Study 2). The authors found that several generated words were related with communion (e.g., family, giving, warm feeling, being caring, loving, hugging, friends), and these communal words were rated high on centrality to gratitude.

When focusing on communal relationships, expressing gratitude seems to be as important as feeling gratitude. Expressing gratitude motivates benefactors to behave prosocially again in the future (McCullough et al., 2008), because they feel self-efficient and socially valued (Grant & Gino, 2010). When a relationship partner expresses gratitude, it augments the perception of communal strength in the same relationship over time (Lambert, Clark, Durtschi, Fincham, & Graham, 2010). Moreover, expressing gratitude to a communal partner increases the relationship maintenance and the relationship satisfaction (Lambert & Fincham, 2011). In sum, it is well established that gratitude is linked to communion: it functions to augment closeness with others. Moreover, gratitude is predicted by a specific type of benefit: responsiveness to one's needs. What seems to be missing is to understand the role of relationship's perception to interpret both benefits and gratitude.

1.3. Interpersonal Relationships

1.3.1. Theory of Relationship Orientation

Clark and Mills (1979) proposed a theory of relationship orientation based on rules governing the giving and receiving of benefits. The authors distinguished a dimensional continuum ranging from communal-oriented to exchange-oriented

relationships. At one extreme, communal-oriented relationships are normally relationships one has with family members, friends or a romantic partner, whereas exchange-oriented relationships are those relationships one establishes with strangers or people who do business with each other. Relationship orientation can be distinguished based on the applied norms governing the giving and accepting of benefits, or so to speak, the responsiveness to one partner's needs. Benefits are something valuable that are intentionally provided from one partner to another. The provision of benefits is informative of which interaction one has, or is willing to have. For instance, in communal-oriented relationships, partners feel responsible for each other's welfare, and benefits are given to meet the partner's needs. In exchange-oriented relationships, when one provides a benefit, he or she is incurring in a debt which should be reciprocated afterwards in a similar manner (Clark, 1984).

Attending to the needs of a communal partner is, for example, being aware of the partner's mood. Clark, Ouellette, Powell, and Milberg (1987) tested if when a communal-oriented benefactor was aware of a beneficiary's sadness, this awareness would increase the likelihood of providing more help. Results showed that in relationships high in communal orientation, compared with those low in communal orientation, people paid more attention to the partner's needs, responded more to the partner's emotions, and provided more help. Reciprocity in communal-oriented relationships is not well accepted. Clark, Lemay, Graham, Pataki, and Finkel (2010) tested whether applying communal versus exchange norms to romantic relationships previous to marriage would have influence on the couple's self-reported wellbeing, two years later. The authors found that, for romantic couples, to endorse communal norms was perceived as ideal, in comparison with exchange norms. Furthermore, those couples

who endorsed communal norms (adherence and partner's perceived adherence), reported greater marital satisfaction prior to marriage and two years after marriage.

Adherence to communal norms increases partners' communal motivation. That means that individuals feel more motivated to give benefits in response to the partner's needs or to please the partner, because communal-oriented relationships are generally high in communal motivation, contrary to exchange-oriented relationships, which are low in communal motivation (Clark & Mills, 1979; Mills, Clark, Ford, & Johnson, 2004). For example, refusing to help a communal partner can lead to a detriment of positive affect. That is likely to happen because communal partners have expectations toward each other's role in maintaining the relationship as communal, and help in communal relationships is given without reciprocity expectations (Williamson, Clark, Pegalis, & Behan, 1996). Hence, it seems crucial to communal-oriented relationships to be attentive to the partner's needs. Reis, Clark, and Holmes (2004) have suggested the *perceived partner responsiveness* as a central construct to coordinate, and to emotionally respond to intimate or close relationships. The perceived responsiveness is based on the actual or perceived partner's behavior, and it indicates the motivation to form or to maintain a communal-oriented relationship (Clark & Mills, 2011).

Mostly, perceived responsiveness is related to expectations. Different relationship types (e.g., communal- *versus* exchange-oriented) have different expectations concerning the responsiveness of one's partner: In a communal-oriented relationship, partners expect to be understood and to have their needs, goals, values or preferences supported according to the salient need. In an exchange-oriented relationship, partners do not expect to have their needs, goals, values or preferences responded by an exchange partner. People have prior expectations concerning the relationship partner: the reciprocation in kind of a benefit is only considered in

exchange-oriented relationships (Clark & Mills, 2011). However, how do people get to these expectations? To answer this question, one might benefit from depicting the Relational Models Theory (Fiske, 1992), a different relational approach which posits that relational expectations are based on prior verbal and non-verbal categorical information.

1.3.2. Relational Models Theory

Relational Models Theory (RMT, Fiske, 1992) postulates that people structure their social lives into four different modes of coordinating social interaction. Four relational models, which are universal cognitive representations of social relationships, are used to form and to sustain social relationships, such as constituting and structuring groups, forming social identity and the relational self (Fiske & Haslam, 2005; Fiske, 1992). Contrary to the aforementioned approach from Clark and Mills (1979), RMT suggests that social relations are not organized as a dimensional continuum, but as independent categories, where relationships are perceived as mental representations. Although individuals are assumed to apply only one of the four relational models to a given relationship at any point in time, ongoing relationships tend to be structured according to more than one relational model over time (Haslam & Fiske, 1999; Haslam, 1994). For example, a cross cultural analysis of social substitution errors revealed that when people make social errors (e.g., a mother switching the names of her two offspring), they make these mistakes more easily for people with whom they have the same type of relationship (Fiske, 1993). Moreover, there is evidence supporting the theoretical claim that people mentally represent their relationships according to models of relationships: when asked to name and to group their social connections, individuals clustered relationships according to the model they applied to each relational contact (Fiske, 1995).

Hence, four models have been suggested to coordinate people's social interactions: *Communal sharing*, where relational partners feel undifferentiated from each other; *Authority ranking*, when relational partners are distributed asymmetrically; *Equality matching*, which concerns even balance among relational partners; and *Market pricing*, regarding cost-benefit relationships (Fiske, 1992).

More specifically, communal sharing relationships have a communal policy of equivalence: members are all the same. Relationships are based on the assumption that bodies are connected through a factual (e.g., blood) or a construed meaning essence (e.g., beliefs). Because relational partners share a common substance, they feel undifferentiated from each other, and their individual identities are merged. Therefore, communal sharing relationships are strong bonds constituted through solidarity and unity, applying the principle of "all for one, and one for all." Given that, communal partners feel motivated to share and to attend to each other's needs, to take the other's perspective, to be kind and altruistic. Thus, benefits are likely to be valued by the recipient, and the benefactor is motivated to fulfill the needs of the partner. Furthermore, when applying a communal sharing model, benefits should be seen as automatic and not creating relational obligations. This means that communal partners do not keep track of benefits given or received – each partner uses the resources according to his or her own needs. Partners take what they need from pooled resources, and contribute with whatever they can (Fiske, 1992, 2004a; Rai & Fiske, 2011).

Authority ranking relationships are constituted through linear ordering along any hierarchical social dimension. That can be related to any category used to rank people (e.g., age, experience, scores, grades, etc.) The moral motive behind authority ranking relationships is hierarchy, which sustains these relationships. Both parts, superiors and subordinates, feel motivated to play their role in order to maintain the asymmetrical

structure of the relationship (Rai & Fiske, 2011). Accesses to resources, prestige, and privileges are entitled to those who are up in the hierarchy. On the bottom, subordinates are entitled to pastoral care and protection (Fiske, 1992, 2004a). Who is higher in the rank is better at some level. Those lower in the hierarchy pay deference and prestige to superiors, which supplies the hierarchical structure of the relationship (Henrich & Gil-White, 2001). The linear asymmetry assumes that superiors cannot exist without subordinates. Power and status are attributed to superiors on a comparison basis (Lakens, Semin, & Foroni, 2011). Thus, it is crucial for the relation that superiors have the first access to resources, but still be able to provide paternalism, and to care for the needs of subordinates. It is a cyclic relationship: Superior others need subordinates to get status, prestige and to be placed above in the hierarchical rank. That will only happen if the subordinates feel protected, and if they value the benefits they can get from the relation.

Equality matching relationships are constructed through even balance. Everyone gets the same, and if relational partners cannot get the same thing at the same time, they take turns. People keep track of what one member gives and gets in return. These relationships are morally motivated by equality (Rai & Fiske, 2011). Relational partners interact based on the principle of “one person, one vote”, or “tit-for-tat.” Interactions happen via reciprocity in kind. Giving someone ten potatoes creates the expectation of receiving ten potatoes back. The reciprocity norm sustains relational obligations in social exchanges, and is applied in relationships which are developed among peers, colleagues, people who are symmetrical or are at the same status level. In order to maintain the relationship symmetrical, one must be able to reciprocate in kind. However, when one had previously benefited from an equal-status person, and one is unable to reciprocate, this unbalanced benefaction leads to indebtedness, which can

change the relational model of equality matching to a relational model of authority ranking (Fiske, 1992, 2004a).

The fourth model is the market pricing relational model. Relational partners base their interactions on ratios and proportions. People analyze costs and benefits of all transactions. Partners are driven by the moral motive of proportionality. Market pricing relationships are supposed to be win-win interactions (Rai & Fiske, 2011). The most basic example of proportions in western societies is money. People pay for goods as much as they think it is a fair transaction. There is a cost-benefit analysis of the situation before the transaction, whether the wanted good is worth the amount of money. For example, people get paid for their jobs according to their education levels (Fiske, 1992, 2004a). However, money is not the only important thing in proportions. Proportions can be abstract: Ariely, Kamenica, and Prelec (2008) suggested that the perceived value for one's work is as important as the money one is paid to perform a task. Thus, market pricing relationships are established through rules of proportionality where the benefit returned should be proportional to the benefit received (Fiske, 1992).

There are also asocial or null relationships, when people interact for a non-social purpose, and not for the sake of sustaining a relationship. This happens, for example, when people ignore others and discard their meaning as beings, even if aware of their presence. Thus, these null relationships are based on moral indifference, and they are suggested to be part of all the four models, present in each of the four categories. For example, most social relationships start from indifference, increasing their degree of intensity with time and personal investment (Fiske, 1992; Rai & Fiske, 2011).

Altogether, relational models provide information about their relational meaning, expectations, and are useful to interpret other people's behaviors and

relational intentions. However, how do people decode information to apply the right model with different relational partners? From an evolutionary perspective, people have innate attentional, cognitive, motivational and developmental proclivities (*mods*), which are used conjointly with culture specific paradigms (*preos*) to interpret local cultural coordination devices. For instance, relational models are a cultural coordination device: the coordination of the four universal relational structures is differently implemented according to each culture (Fiske, 2000). Taking the example of marital relationships, in some cultures these relations fall inside a communal sharing model of interaction. Spouses have a shared common bank account, and they divide the household and child-related tasks according to their needs and availability. In other cultures, marital relations are organized with an equality matching model of interaction. Spouses have each their single bank account, and they split into equal shares the amount of time each has to spend in the household and child-related tasks. Thus, even when *mods* are proclivities to learn and structure behavior, they need a *preo*, a congruent social or cultural paradigm to implement the adequate relational model, or the culture coordination device (Fiske, 2004b).

Additionally, people use *conformation systems* to conduct relationships – that is, to coordinate interaction, people need to be tuned to apply the same relational model. These *conformation systems* are related to the constitution, cognitions, communication, cultural transmissions and completion of relationships. Relationships are constituted based on human minds' interactive coordination, highly influenced by cultural standards. So, to constitute a relationship, individuals need to express their social expectations, emotions and obligations and to use their relational mental representations, which allow storing, process, and retrieving relational information from previous interactions. Accordingly, mental representations, or cues, help children or

newcomers to understand which type of relational model one's partner is willing to implement (Fiske, 2004b).

Mental representations of communal sharing relationships are mostly linked to the body. Individuals know, from previous experience, how communal sharing relationships are constituted – People try to make their bodies similar, perceiving the body as the social self (e.g., being undifferentiated from communal partners). This deindividuation, or the feeling of being the same, is constituted through the conformation system of consubstantial assimilation. Examples of consubstantial assimilation are giving birth, nurturing, sharing food and drinks, blood transfer, bodily contact, or synchronous movements (Fiske & Haslam, 2005; Fiske, 2004b). Touch, for instance, is a particularly strong cue to constitute communal sharing: “If intimacy is proximity, than nothing comes closer than touch, the most intimate knowledge of another. The expression to "know" someone in the Biblical sense is equivalent to having been sexually intimate with them, to have known their body. To permit another to come so close that bodies touch is an act of vulnerability and trust” (Thayer, 1986, p. 12).

1.3.2.1. Touch

Taking the mother-child interaction as a typical example of the communal sharing model, it is not surprising the amount of touch involved in communal sharing relationships: Mothers breastfeed their babies and they hold the baby close to their bodies. Massaging or caressing the baby is extremely frequent and it is seen as natural, being perceived as an expression of love and affect. That is because an intense physical contact is suggestive of high proximity and intimacy (Burgoon, 1991). For example, imagine a romantic couple: They do not feel bothered with eating from the same plate, or drinking from the same glass. They exchange saliva when kissing, and use touch to

express affection, love, compassion, happiness, among other feelings. Hence, the idea of having two connected bodies is rooted on the principle of a shared communal essence described in the communal sharing model.

The importance attributed to the shared essence puts the body in the center of communal sharing relationships. The body is used to be connected with other communal partners, as if everyone is part of the same “big” and extended body. If communal sharing relationships are constituted through mental representations of shared essences, then in order to apply a communal sharing model one needs to mentally represent information previously acquired in communal sharing relationships to simulate communal feelings. Consequently, mental representations of communal sharing seem to be grounded in the body. One knows that holding someone close to one’s body is representative of affection, caring, or being merged, and that is the foundation of communal sharing.

Perceptual experiences (e.g., physical contact is frequent and valued within communal sharing relationships) are stored in the mind, associated with their modal perceptual symbols (e.g., friendly touch). Perceiving new perceptual symbols triggers mental representations of previous experiences in the sensory-motor system, and activates mental simulations based on these representations (for a review, see Barsalou, 1999; Schubert, Waldzus, & Seibt, 2008). Accordingly, receiving a friendly touch from a stranger should be sufficient to trigger the representation of a communal sharing relation. People who have previously related in a communal sharing model know that touch decreases their physical distance, connecting bodies. Thus, after a friendly touch, one should easily activate a communal response to match the perceived intention to initiate a communal sharing relationship.

This argument can be strengthened by physiological data: Uvnäs-Moberg (1997, 1998) proposed a similar model of physical contact as an activator of positive interactions. Breastfeeding, touching, warmth and odor increase oxytocin levels, which in their turn, reduce stress levels and increase health benefits. For example, touching someone is associated to positive consequences, and this association will be stored as a memory. Thus, receiving a friendly touch, which generally happens in close and valuable relationships, will reactivate physiological processes induced by the original stimulus, such as an increase of oxytocin levels, and oxytocin will increase the positive feelings toward the toucher.

More than its positive consequences in interpersonal relationships, touch was first established on the literature as important to survival as other drives such as food or thirst. The classical work of Harlow (1958) on fabricated monkey mothers, emphasized the importance of bodily contact between mother and child. The group of baby monkeys which were fed by a wire mother spent less time with the wire mother than with the cloth mother, showing signals of psychosomatic involvement in comparison with baby monkeys which were fed by a cloth mother. The wire mother was sufficient to fulfill the biological needs but insufficient for psychological needs. To explain these differences, Harlow suggested that the cloth would replace somehow the comfort which comes from a natural touch and cannot be found in wire. Additionally, even from an evolutionary perspective, there is evidence on how important physical contact is to social relations. Some species of primates spend 20% of their daytime grooming other group members. This time is not justified by the quantity of parasites group members have, but it is particularly important to constitute social bonds and to strengthen in-group relationships (for a review, see Dunbar, 2010).

Research conducted with human subjects has suggested evidence supporting the claim that touch is a powerful relational tool. Among strangers, a fleeting touch seems to be sufficient to activate positive affect, assisting others and/or behaving prosocially. Fisher, Rytting, and Heslin (1976) found that being accidentally touched by a library clerk increased positive affect and liking the toucher. Receiving a friendly touch is suggested to augment the likelihood of helping others (Guéguen, 2002; Patterson, Powell, & Leniham, 1986), to comply with, or to follow advices of the toucher (Guéguen, Jacob, & Boulbry, 2007; D. E. Smith, Gier, & Willis, 1982). For example, receiving a friendly touch on the palm or on the shoulder by a waitress at a restaurant, led costumers to give larger tips in comparison to those who were not touched (Crusco & Wetzel, 1984). What has not been put forth yet is the reason why this happens. Even if touch is suggestive of increasing closeness, why would a fleeting touch, provided by a stranger, increase compliance, positive affect or liking? I assume that it is the warmth and consideration, that touch is usually associated with, which will activate communal-related expectations.

People have prior relational knowledge, useful to help them decoding a given cue (e.g., non-contingent benefit or touch) and, either accept or decline to match the perceived relational model (e.g., communal sharing). Accepting to implement the same model activates mental representations of the relational model, simulating emotions or activating behaviors previously experienced in the same relational model with other partners. In sum, cues such as benefits or touch are crucial for communal sharing, and consequently to gratitude. This research program was designed to investigate these variables and how do they influence each other. Therefore, in the following section I will explain the predictions about benefits, touch, communal sharing and gratitude and how they interrelate to function with each other.

1.4. Summary of the Current Research: Benefits, Interpersonal Relationships and Gratitude

Previous evidence has shown that gratitude is a social emotion dependent on valuable benefits (McCullough et al., 2001) perceived as responsive to the beneficiary's needs (Algoe et al., 2010, 2008; Algoe, 2012), driven by a social appraisal of having been involved in a positive interaction (e.g., Hareli & Parkinson, 2008). As a social emotion, gratitude functions to invest in high quality social relationships (Algoe, 2012), such as communal partners (Algoe & Haidt, 2009). But people can feel grateful for many things other than concrete benefits, such as having close relationships with relatives, or friends (Lambert et al., 2009).

If one analyzes the assumption of gratitude as dependent on a benefit appraisal (e.g., McCullough et al., 2001, 2008), one could assume that gratitude would be specifically triggered by a beneficial act, and not as a general feeling. Thus, individuals would not feel grateful regarding a relational partner, unless the relationship itself would be perceived as a general benefit. However, Algoe et al. (2008; 2012) have previously argued that gratitude is not a general response to benefits, but specifically to responsive benefits. Individuals can be provided with many benefits, but they will only be grateful if the benefit is perceived as thoughtful of the benefactor toward the beneficiary. Thus, the main conclusion is that people can feel grateful regarding relational partners as long as the partner is considered to be responsive to one's needs.

In line with this argument, perceived responsiveness is about one's partner understanding and appreciating things which are important to the self; being responsive to the core attributes of the self; paying attention to one's needs, augmenting the feeling of being cared for; and therefore feeling closer to the partner (Reis, 2007). Given that

most of these attributes which define perceived responsiveness are similar to the definition of communal norms (Clark & Jordan, 2002), and to the mental representation of communal sharing (Fiske, 1992) it launches the question: what do benefits activate? Is it gratitude or communion?

Benefits are crucial for relationships: individual use benefits to create relational expectations. Communal-oriented relationships would be desired if there is no need of keeping track of benefits given and received (Clark, 1984). Fiske (1992, 2004a) suggested a similar interpretation of expectations entailed by benefits. Communal sharing partners would not keep track of what is given and received. Partners do whatever they can for each other – they share whichever resources they have. Independently of who contributes with what, each one takes whatever he or she needs. Thus, benefits signal relational intentions, but only responsive benefits predict gratitude. Based on these assumptions, I predicted that 1) non-contingent benefits should be a cue for communal sharing because of its categorical nature, and 2) non-contingent benefits should increase gratitude via communal sharing, justifying the link between responsive benefits and gratitude.

Chapter 2 is dedicated to the role that non-contingent benefits play on communal sharing and on feeling grateful. In Study 1 I tested whether gratitude was predicted by communal sharing after imagining having received a benefit from a new friend. In Study 2, I hypothesized that this pattern would be similar in ongoing stable relationships. Furthermore, I tested whether, in the absence of a concrete benefit, communal sharing would predict future feelings of gratitude regarding an ongoing stable relational partner. In Study 3, I researched if unexpected non-contingent benefits would activate the mental model of communal sharing with a stranger. Thus, if this reasoning is correct, non-contingent benefits given by a stranger can be positively

unexpected. In order to make sense of the act, one activates mental representations of relationships, trying to match them with other similar social interactions. I assume that non-contingent benefits, by their kind nature, are more likely to activate a mental representation of communal sharing. Additionally, the intention to implement a communal sharing model should increase gratitude, as a response to the relational expectations, and not to the benefit itself.

These predictions are supported by Lazarus and Lazarus (1994) appraisal theory. The authors have suggested that people appraise relational core themes, based on the individual's own interpretation of the situation. Emotional appraisals should not be static and should relate to how the person perceives his or her interaction with the environment. Therefore, emotions should be the outcome of social appraisals, rooted in social concerns. Gratitude's social concern is having been involved in positive interactions with others (e.g., Hareli & Parkinson, 2008). This claim was also made by Lambert et al. (2009), when they reported their findings about the association of gratitude with communal relationships. Therefore, another question rose: if gratitude is dependent on the mental representation of communal sharing, then a subtle communal sharing cue should be sufficient to augment feelings of gratitude. If that is true, the activation of a communal sharing mental model would be sufficient to fill in the informational gaps regarding the stranger, and to perceive this stranger as a communal partner. Moreover, filling in gaps with previous relational knowledge drawn from environmental cues would induce emotions already experienced in the same relational model (e.g., love in communal sharing; awe in authority ranking; comradeship in equality matching; Fiske, 2002). These assumptions are developed and discussed in Chapter 3.

As mentioned above, the Study 4 described in Chapter 3, addresses the research question about whether gratitude would be activated with a communal sharing embodied cue (friendly touch). Also, I tested the prediction that this link was mediated by perceived future communal sharing feelings toward a stranger. If gratitude is perceived in communal sharing relationships, then even a subtle communal cue, such as touch, given by a stranger, should be sufficient to activate both, the communal sharing model and gratitude. I manipulated physical contact (touch) to activate the mental representation of communal sharing. Being touched by a stranger has been associated to many positive feelings and liking (e.g., Fisher et al., 1976), but not yet with the implementation of a communal sharing model with a stranger. Based on RMT (Fiske, 1992), and on the Perceptual Theory of Knowledge (perceptual symbols, Barsalou, 1999), I predicted that receiving a friendly touch would activate the mental representation of communal sharing, given that communal sharing is embodied in touch. Moreover, using the touch as a cue for communion, one would simulate the application of a communal sharing model with a stranger, given previous knowledge associated with modal perceptual symbols (touch: when does it happen, and what does it mean).

Moreover, I predicted that touch, contrary to non-contingent benefits, would elicit gratitude indirectly via perceived communal sharing. If, as suggested by Harlow (1958), touch represents caring for the other person, I assume that it also represents a considerate gesture for the receiver of the touch. If touch can be perceived as a considerate communal gesture, it should also drive a general communal feeling toward the toucher, increasing gratitude toward the relational partner.

In sum, in the following two chapters I present evidence that support the claim that gratitude can be dependent on mental representations of communal sharing relationships. Specifically, I assume that individuals appraise stimuli based on relational

accounts: they analyze relational intentions based on environmental cues and respond to these intentions using relational knowledge previously acquired. New relationships can be interpreted with the same formulae used in ongoing similar relationships. Specifically, for communal sharing cues, I suggest that when interpreting the cues as communal, it should lead to the activation of mental simulations of communal sharing in the new relationships. Based on communal mental representations, communal sharing models should activate expectations grounded on previous experiences. Cognitions, emotions and behaviors should follow the relational expectations. Thus, gratitude should be facilitated by communal sharing relationships, given the sharing nature of these relations. The next two chapters are empirical chapters, reporting the predictions described above. Both chapters can be read independently. Chapter 2 is a manuscript accepted to publication, and Chapter 3 is a working paper in preparation to submit to publication. In the Chapter 4, I will present an integrated discussion and the contribution of this research to the field of gratitude and social relationships.

CHAPTER 2: Gratitude Depends on the Relational Model of Communal Sharing

Imagine you fall ill, and have to spend a week in the hospital. One of your acquaintances visits you almost every day. Even though she is not a good friend, you have fun and enjoy the afternoons you spend together. You had never done something similar for that person, and you do not know if you will ever have the chance to repay this favor. When you leave the hospital, you remember laughter, conversations, and reading stories to each other. Probably, you will feel grateful toward the person, appreciating the effort she made to help you over this difficult time.

This is because the person benefited you. She turned what could have been an awful experience into something almost enjoyable. So one could conclude that benefits evoke gratitude – the larger the benefit, the greater the gratitude. However, already Adam Smith pointed out (1790/1976) that not all benefits elicit gratitude. How can we then explain which benefits do elicit gratitude? Returning to the example from above, imagine you had suspected or learned that your acquaintance paid these visits in order to get something in return. You would probably feel less grateful, maybe even betrayed. This means that gratitude depends on the intentions of the benefactor, a point that has been raised and corroborated by many researchers (Algoe et al., 2008; Algoe & Stanton, 2012; Algoe, 2012; McCullough et al., 2001, 2008).

However, other persons' intentions are not always explicitly communicated. Often, individuals just seem to know whether the other person just wants to be nice or whether she expects something in return. Relational models theory (RMT, Fiske, 1992,

2002) posits that individuals hold mental models of *relationships*, and that these models determine which intentions one assumes the other person to have.

2.1. Social Relationships

According to RMT (Fiske, 1992), social relationships are governed by cognitive models or relational mental structures. These models are universal representations of social relationships and serve to coordinate and organize social interactions (Fiske & Haslam, 2005; Fiske, 1992; Haslam, 1994). In each of the relational models, benefits have different relational meanings. In the communal sharing model, relationships are categorized as strong bonds constituted through solidarity and unity, applying the principle of “all for one, and one for all.” Partners feel motivated to share resources and to attend to each other’s needs. Thus, benefits are motivated by concerns for the partner’s welfare. Equality matching is constituted through even distribution procedures and reciprocity norms. Whenever people take turns, flip a coin, or use other means to establish equality, they apply the relational model of equality matching. Benefits are used to establish symmetry between parties and are reciprocated in kind. The beneficiary is indebted until he or she can repay the benefit. Inability to reciprocate is one cue for the appropriateness of an asymmetrical relational model. For such asymmetrical cases, authority ranking is the model typically applied in hierarchical relations. The superior individual is entitled to respect, deference and tangible resources, and in turn, expected to provide protection and help (Fiske & Haslam, 1996, 2005; Fiske, 1992, 2000; Henrich & Gil-White, 2001).¹

Communal sharing is the only model where benefits are not given out of, or entail an immediate obligation. Rather, benefits are given out of a consideration of the

¹ The fourth relational model, market pricing, is not part of the present research. We discuss this in the general discussion.

other person's needs. Most theories of gratitude assume that responsive benefits are a pre-condition for gratitude (Algoe et al., 2010, 2008; Algoe & Stanton, 2012; Algoe, 2012; Heider, 1958; Lazarus & Lazarus, 1994; McCullough et al., 2001; Ortony et al., 1988; A. Smith, 1976). If only responsive benefits trigger gratitude, then representing an interaction as communal sharing is a pre-requisite for feeling grateful about a benefit. Responsive benefits should activate communal sharing, given they are provided as representative of caring and attention to the partner's needs. The same should not be true for equality matching or authority ranking, given their associated relational obligations.

Accordingly, we predict that after receiving a benefit, or imagining receiving a benefit, the amount of gratitude experienced is uniquely predicted by the communal sharing model, and not by any other model. Across three studies, we tested whether the extent of communal sharing perceived in a relationship predicts feelings of gratitude. We varied the nature of the benefit across studies: in Study 1, participants imagined receiving a specific benefit from a new friend. In Study 2, participants recalled receiving a large benefit and in Study 3 we manipulated the benefit in an online interaction with an unknown fellow student. Across all studies we measured relational models and gratitude. Specifically, we hypothesized that when different relational models are considered simultaneously, gratitude is predicted by communal sharing but not by equality matching (Studies 1-3) or by authority ranking (Study 1 and 2).

Apart from testing the main hypothesis across all three studies, we also tested in each of the studies one additional assumption to better understand the relationship between benefits, gratitude and communality. The first assumption concerns the relationship between communal sharing, gratitude, and one's own motivation to fulfill the partner's needs. When individuals represent a particular relationship as communal

sharing, they will assume the other person tries to fulfill their needs, leading to gratitude, but they will also be motivated to fulfill the needs of the communal partner. This motivation is called communal strength (for a review, see Clark & Mills, 2011). Accordingly, we assume that communal sharing predicts both gratitude and communal strength independently (see also the general discussion).

The second assumption concerns gratitude in the absence of any current benefit. If one aspect of communal sharing is the expectation that the relational partner intends to fulfill one's needs, then this expectation might suffice to produce gratitude regarding the relational partner (Lambert et al., 2009). Thus, one is grateful for being taken care of by the relational partner. Therefore, we tested whether the extent of communal sharing perceived in a relation predicts future feelings of gratitude regarding the relational partner when no benefit is mentioned (Study 2). Finally, receiving a benefit in a situation where one cannot return it (a *non-contingent benefit*) should be a cue to communal sharing. Therefore, we tested whether receiving a non-contingent benefit induces communal sharing (Study 3).

2.2. Study 1

In Study 1, we used a pre-tested favor scenario to evoke feelings of gratitude (Tsang, 2006). We hypothesized that gratitude would be dependent on the perceived extent of communal sharing in the relationship to the benefactor. Specifically, communal sharing should predict gratitude when controlling for equality matching and authority ranking, whereas the other two models should not. We also predicted that communal sharing would influence separately communal strength and gratitude. This is because communal sharing is a mental representation of a relationship based on communal norms. Interpersonal interactions are interpreted according to the applied

relational model, and its relational schemes (Baldwin, 1992; Fiske, 1995). Communal sharing and communal norms fit with the interpretation that the benefactor is motivated by concern for one's welfare, which should evoke gratitude. Communal norms are also suggested to precede communal strength, one's own motivation to meet the other person's needs (Clark & Mills, 2011). Thus, both gratitude and communal strength should be predicted by communal sharing.

2.2.1. Method

2.2.1.1. Participants

First-year university students were asked via e-mail to take part in an online study. Students (72% females) from a Portuguese university in Lisbon (ISCTE-IUL) and a German university in Dortmund, (University of Dortmund) took part in this study (56% Portuguese). Analyses are based on 145 participants ($M^{age} = 21.19$, $SD = 5.41$).² German participants received course credit for the study whereas Portuguese participants were all volunteers. All procedures were conducted according to the ethical guidelines and approved by the ethics board of the Scientific Commission of the hosting institution, Centro de Investigação e Intervenção Social (Cis-IUL).

2.2.1.2. Procedure and measures

In the middle of the first semester of their first year, students were invited through the university's mailing list to participate in an online study about social interactions. After reading the informed consent, participants were asked to check a box in order to give their consent to proceed to the online study. Those who agreed to participate were asked to name one other first year student with whom they had become

² Ten participants were excluded from the analyses because they did not follow the instruction to name one first year student and named several.

friends since the beginning of the academic year. This was done to control for the type and duration of the relationship by keeping them constant across participants. Participants were then instructed to read the following scenario and to imagine themselves living the situation with the person they had just mentioned:

It is the beginning of the semester and you are standing in line at the bookstore to buy all the books for your classes. You are waiting in line with a friend and both of you joke about how long this is taking. After a long wait you learn that the total cost for your books is 100€, which is more expensive than what you expected. You only have 75€ in cash and it is not possible to pay by card. As you are standing there and wondering what to do, your friend offers to lend you the extra 25€: “Don’t worry, I’ve been in that situation before and it is a real bummer. I will lend you the money and whenever you can, you give it back to me. So you don’t have to go back to the line again.” You take the offer and proceed with the purchase of your books. (adapted from Tsang, 2006, p. 201)

After reading the scenario, participants filled out the following dependent measures:

2.2.1.2.1. Gratitude

Participants were asked to what extent they had felt gratitude toward the new friend in the imagined scenario, on a 7-point Likert-scale (1 = not at all; 7 = extremely).

2.2.1.2.2. Relational models

We adapted the relational models questionnaire from Haslam (1994) to Portuguese and German. Each relational model is assessed with six items (ranging from

1 = not at all true in this relationship to 7 = completely true in this relationship). An example item for communal sharing is “*What’s mine is yours’ is true of this relationship*”, $\alpha = .83$, for authority ranking “*One of you takes most of the initiative*”, $\alpha = .72$ and for equality matching “*Your relationship is organized on a 50 : 50 basis*”, $\alpha = .60$ (See Appendix A for subscales).

2.2.1.2.3. Communal strength measure

The 10-item measure by Mills, Clark, Ford, and Johnson (2004) communal strength of the participant toward the new friend ($\alpha = .83$). In particular, the scale assesses the degree of motivation one feels to attend to a partner’s needs. An example item is “*How large a benefit would you be likely to give to your friend?*” with a scale from 1 = not at all to 10 = extremely (See Appendix B).

2.2.2. Results

Preliminary analyses indicated that there were no differences between the Portuguese and the German³ sample concerning our hypothesis tests, so we combined them. We then tested which relational models predict gratitude. We regressed gratitude on communal sharing, authority ranking and equality matching⁴. As hypothesized, communal sharing significantly predicted gratitude ($\beta = .27, p < .01$), and authority ranking ($\beta = .14, p = .10$) and equality matching ($\beta < .1$) did not.

³ To test whether our two samples differed with regard to the hypothesized relationship, we repeated this regression analysis with sample as a factor. We added the main effects of the three relational models, the main effect of sample, and the three computed interactions (each relational model with sample). As expected, the only predictor of gratitude was the main effect of communal sharing ($\beta = .26, p = .009$). Furthermore, the interaction between authority ranking and sample showed a marginal effect ($\beta = -.16, p = .06$), which means that for the Portuguese sample, authority ranking also predicted gratitude ($\beta = .26, p < .05$). Given that this interaction was unexpected and not significant, we needed to see whether it would replicate in a second study.

⁴ For all multiple regressions reported, we confirmed with the Variance Inflation Factor that our predictors showed low multicollinearity.

We then tested the relation between communal strength and gratitude. As expected, communal strength and gratitude were positively correlated with each other ($r = .23, p < .01$). Therefore, we conducted two different regression analyses. First, we tested whether communal sharing would predict gratitude when controlling for communal strength. The results revealed that communal sharing significantly predicted gratitude ($\beta = .29, p < .01$), but communal strength did not ($\beta < .1$). Our second analysis was to test whether communal sharing or gratitude would predict communal strength. As hypothesized, communal sharing was the only predictor of communal strength ($\beta = .61, p < .001$), when controlling for gratitude ($\beta < .1$).

2.2.3. Discussion

As expected, gratitude evoked by a favor scenario was predicted by the communal sharing model. The link between benefits and gratitude has been established in previous research findings (Algoe et al., 2008; Bartlett & DeSteno, 2006; see McCullough et al., 2001), as well as the link between benefits and communal-oriented relationships (Clark, Dubash, & Mills, 1998; Clark & Mills, 1979; Clark, 1984). The present findings show that the communal sharing model predicts gratitude, in comparison to other relational models. A second, independent effect we found was that communal sharing predicted communal strength.

In this study, we established the link between communal sharing and gratitude. However, this effect was based on self-reports about an imagined scenario. Even though we used a pre-tested scenario, we acknowledge that scenarios are less involving than actual events, which can bias reactions to them (Hegtvedt, 1990; Tsang, 2006). Therefore, we conducted Study 2 to obtain clearer evidence for the role of communal sharing in predicting future feelings of gratitude, based on real-life benefit events. If our reasoning is correct, then gratitude will depend on the relational model of communal

sharing, and communal sharing at one point in time should predict feelings of gratitude at a later point in time, whereas the opposite should not be true. This would be an indication that communal sharing is a predictor of gratitude (Cohen, Cohen, West, & Aiken, 2003).

Another goal of Study 2 was to test whether communal sharing influences gratitude regardless of whether a benefit is evoked or not. If the expectation that the relational partner intends to fulfill our needs indeed produces gratitude regarding the relational partner, as we argued in the introduction, then we should find that communal sharing predicts gratitude for a concrete benefit and a more generalized gratitude regarding the relational partner. Accordingly, simply recalling the communal partner should suffice to evoke gratitude. Therefore, we conducted Study 2 over three time points, assessing gratitude for a benefit in the first wave and gratitude regarding the relational partner later. To better understand and explore these relations we used a cross-lagged panel design.

2.3. Study 2

In Study 2, we tested whether a stable communal sharing relationship would foster feelings of gratitude over time. Our findings from Study 1 showed that gratitude is predicted by communal sharing. In Study 2, participants were instructed to recall receiving a large benefit from someone they knew, and we assessed gratitude and the same three relational models as in Study 1. After three and again after six weeks, we repeated these measures, this time asking about gratitude for the relationship instead of the benefit. We hypothesized that communal sharing at Time 1 would predict future feelings of gratitude for the relationship. We further expected to find that communal

sharing at Time 2 predicted gratitude at Time 3. Furthermore, we expected these effects to be unidirectional, suggesting a causal relation.

2.3.1. Method

2.3.1.1. Participants.

Seventy-four Portuguese students enrolled in an introductory Sociology class participated in this study in exchange for course credit, either at one, two or three time points. Sixty students (73% females) participated at three time points. The dropout rate was 19%. In addition, two participants were excluded from the analyses because they did not follow instructions. Fifty-eight students were thus included in the analyses, with an age range from 19 to 53 years ($M = 26.60$, $SD = 9.42$). All procedures were conducted according to the Ethics Guidelines defined by the Scientific Commission of the hosting institution, Centro de Investigação e Intervenção Social (Cis-IUL).

2.3.1.2. Procedure and measures.

2.3.1.2.1. Time 1 (T1)

Participants arrived at the lab, read and signed the informed consent, and were told that they were about to participate in a study about interpersonal relations. They completed the study individually at a computer. Participants were also told that they should complete follow-up measures online in two more sessions.

First, participants were instructed: “Please, describe a specific situation when someone you know did something really nice for you” (adapted from Algoe & Haidt, 2009). Next, they wrote the name of the benefactor, and specified the type of relationship (e.g., parent, friend, spouse, etc.). Afterwards, participants answered the following dependent measures: *Gratitude* (“How much gratitude did you feel in the

mentioned situation?” from 1 = not at all to 5 = extremely), and the relational models questionnaire from Study 1 with the three subscales *communal sharing* ($\alpha = .88$), *authority ranking* ($\alpha = .73$) and *equality matching* ($\alpha = .75$).

2.3.1.2.2. Time 2 (T2) and Time 3 (T3)

The e-mails with the links to the follow-up questionnaires reminded participants of the name of the benefactor and the type of relationship (e.g., parent, friend, spouse, etc.) they had given at T1. This information was repeated in the beginning of the online questionnaire. Contrary to T1, where gratitude was assessed regarding the situation, at T2 and T3 we measured gratitude regarding the person: “*Considering the person mentioned before, how much gratitude do you feel?*” Apart from this, participants responded to the same scales presented at T1 regarding the same person – *communal sharing* (T2 $\alpha = .92$; T3 $\alpha = .94$), *authority ranking* (T2 $\alpha = .80$; T3 $\alpha = .80$), and *equality matching* (T2 $\alpha = .75$; T3 $\alpha = .78$). In the end, participants were fully debriefed.

2.3.2. Results

2.3.2.1. Preliminary analyses

We predicted longitudinal effects of communal sharing on gratitude based on the assumption of stability of communal sharing over time due to ongoing stable relationships. We predicted that there would be no difference in the reported levels of relational models from T2 to T3. This would support the assumption of relational stability over time, which is necessary for concluding that the predictor (communal sharing) influences the criterion (gratitude) over time. We decided not to include T1 in this analysis, given that T1 differed from later assessments in that participants recalled a benefit and reported gratitude for that benefit. Thus, we tested the effect of time (from T2 to T3) on all variables (communal sharing, authority ranking, equality

matching and gratitude). As expected, time had no effect on the average of any relational models ($F_s < |2.5|$, $p = ns$) nor on the average of gratitude ($F < 1$, $p = ns$).

2.3.2.2. Cross-sectional effects

To replicate the main finding of Study 1, we tested whether gratitude was predicted by communal sharing after recalling a past beneficial event (T1). We regressed gratitude on communal sharing, equality matching and authority ranking. Similarly to Study 1, communal sharing ($\beta = .33$, $p < .05$), but not equality matching ($\beta < |.13|$, ns) nor authority ranking ($\beta < .1$) predicted gratitude.

2.3.2.3. Cross-lagged regressions

Cross-lagged regressions test the effect of one set of variables on another over time. To test whether communal sharing influences how grateful individuals come to feel regarding their relational partner, we conducted one panel of regression analyses: predicting gratitude at T3 by all variables at T2 (see Table 1). Communal sharing and not the other relational models predicted gratitude over time. T2 communal sharing predicted T3 gratitude ($\beta = .39$, $p < .05$). Neither T2 authority ranking nor T2 equality matching predicted gratitude ($\beta_s < |.21|$, ns).

When we tested the opposite direction for each relational model, gratitude did not predict any of the relational models over time: T2 gratitude did not predict T3 communal sharing ($\beta < |.10|$, ns) nor T3 authority ranking ($\beta < .1$, ns). However, T2 gratitude negatively predicted T3 equality matching ($\beta = -.20$, $p < .05$). Thus, the results showed a non-recursive model: communal sharing predicted gratitude across time, but the opposite did not happen.

Table 1. *Cross-Lagged effects between gratitude, communal sharing, equality matching, and authority ranking from time 2 to time 3.*

Effects	Time points
	T2 – T3
Gratitude	
Stability of gratitude	.50 ^{***}
Communal sharing to Gratitude	.39 [*]
Equality matching to Gratitude	-.21
Authority ranking to Gratitude	-.06
Communal sharing (CS)	
Gratitude to CS	-.10
Stability of communal sharing	.86 ^{***}
Equality matching to CS	-.03
Authority ranking to CS	.02
Equality matching (EM)	
Gratitude to EM	-.20 [*]
Communal sharing to EM	.23 [†]
Stability of equality matching	.72 ^{***}
Authority ranking to EM	-.01
Authority ranking (AR)	
Gratitude to AR	-.09
Communal sharing to AR	-.04
Equality matching to AR	.06
Stability of authority ranking	.70 ^{***}

Note: Standardized regression coefficients are given.

[†] $p < .10$; ^{*} $p < .05$; ^{***} $p < .001$.

2.3.3. Discussion

Study 2 replicated the findings from Study 1 that gratitude for benefits is predicted by a communal sharing relational model. Moreover, neither authority ranking nor equality matching predicted gratitude, which suggests that the marginal effect of authority ranking from Study 1 was either due to chance or only occurs under a limited set of circumstances. Additionally, the results showed that holding a communal sharing model for a close relationship increases future grateful feelings regarding the relationship partner when no benefit is mentioned. Furthermore, the other path from gratitude to communal sharing was not significant, allowing an interpretation of the communal sharing model predicting gratitude. Equality matching and authority ranking had no longitudinal effect on gratitude, when controlling for all other variables. These data suggest that gratitude is more than a response to a benefit: they suggest that gratitude can be relational, driven by the representation of a relationship as caring and valuable.

To corroborate this interpretation, we tested whether receiving a benefit from a stranger leads to gratitude regardless of relational model, or whether even in this situation, feeling grateful depends on applying the communal sharing model. Furthermore, by measuring current gratitude for a current benefit, we sought to eliminate potential bias due to imagination or memory. Therefore, we experimentally manipulated whether or not participants benefited from a kind act of an unknown fellow student. We tested again the main hypothesis that communal sharing, and not equality matching, would predict gratitude. In addition, we tested the assumption that benefiting would increase the likelihood of applying a communal sharing model. Giving a benefit to a stranger of equal status, who does not have any identifying information about the benefactor, – hereafter called non-contingent benefit – signals an intention to fulfill the

other person's needs, because reciprocation is highly unlikely. Such an intention is typical for communal sharing, where relationship partners act out of concern for each other's welfare. The reason for this concern can be that a person considers the other as equivalent in some important aspect, for example, as member of the same group, team, or family. Therefore, non-contingent benefits are cues to communal sharing and should prompt a communal sharing model in the recipient (see Fiske, 2004b).

2.4. Study 3

Studies 1 and 2 showed that after receiving a benefit, feelings of gratitude were dependent on applying a communal sharing model to the relationship. However, these studies did not measure the effects of benefiting compared to not benefiting. Furthermore, participants answered regarding people they already knew. To exclude possible confounds, in this study the interaction partner was an unknown fictitious participant. We predicted that participants who benefited would construe the relationship more according to communal sharing than participants who did not benefit. Gratitude would not depend on the benefit directly, but on construing the relationship as communal sharing.

We therefore manipulated whether the participant was the target of a non-contingent benefit (self-related benefit) or whether another fictitious participant was the target of the same benefit (other-related benefit) and the reason for the benefit. We measured gratitude, communal sharing, and equality matching. We expected self-related benefit to increase communal sharing, and communal sharing to increase gratitude, which should result in an indirect effect of benefit on gratitude. Furthermore, we predicted that the same would not be true for equality matching.

2.4.1. Method

2.4.1.1. Participants

One-hundred and forty-seven students from a Portuguese university in Lisbon (ISCTE-IUL) took part in this experiment, either in exchange for a €5 voucher or for course credit. Ten participants had to be excluded of the analysis because they did not believe in the cover story. Analyzes are based on data from 137 participants (62% of females, $M^{\text{age}} = 19.84$, $SD = 2.99$). All procedures were conducted according to the ethical guidelines and approved by the ethics board of the Scientific Commission of the hosting institution, Centro de Investigação e Intervenção Social (Cis-IUL).

2.4.1.2. Design

Benefit and reason were counterbalanced between participants. Benefit was either *self-related* (participant is the one who benefits) or *other-related* (someone else benefits). Reason for the benefit was either *free time* or *enjoyment*. Because we did not find any differences between the two reasons, we collapsed across this factor in all analyses⁵.

2.4.1.3. Procedure

Participants arrived at the lab to participate in an experiment ostensibly about team work. They read and signed the informed consent and sat down at a computer while the experimenter opened an instant messaging (IM) window.

⁵ We introduced two different reasons for providing the benefit, in order to have some indication whether the effect generalizes across the different reasons provided. We chose *free time* and *enjoyment* as reasons for offering help. From our literature review, costliness of the benefit to the benefactor came up as a factor that increases gratitude (see McCullough et al., 2001; McCullough et al., 2008). Costliness should also be a cue for communal sharing, because it shows that the other is really motivated to help. Therefore, we conducted a pretest to test whether our reasons differed on perceived costliness. The two reasons were presented to 35 students ($M^{\text{age}} = 23.67$, $SD = 9.16$) in a between subjects design. Scenarios did not differ in perceptions of cost ($F < .1$). Based on these data we did not expect results to depend on the reason for the benefit offered.

Participants were told they were about to participate in a study related to team work with three other participants, who were in different rooms/cubicles, connected to a common chat room. Participants were assigned a nickname in the common chat room. All participants were given the nickname: “participant 1.” Participants were told that instructions would be given via IM.

The experimenter left the student alone in the cubicle, and started to give the instructions and take the role of participants 2 to 4:

[Experimenter]:

“We are a research group in Organizational Psychology. We are interested in the virtualization process for work teams, its advantages and disadvantages. Thus, we ask you to participate in the following task.

In this session we have four participants in different lab rooms, who will work in two teams.

Team one: Participant 1 (task duration: 30 minutes [15 minutes])⁶ and Participant 2 (task duration: 15 minutes). Team two: Participant 3 (task duration: 15 minutes) and Participant 4 (task duration: 30 minutes).”

[Participant 2]:

“I would like to swap tasks with participant 1 [participant 4] because I have free time in the next hour/I like to participate in experiments”.

The experimenter agrees with the request and rearranges the timeslot of Participant 2. Teams remain similar. After participants are told that even though they are a team, the tasks have to be performed individually.

⁶ We indicate in brackets the wording for the other-related benefit condition. We set the times for participant 1 such that he/she would always have 15 minutes in the end.

A new individual IM window is opened, and the participant receives the link to his/her task, together with the additional information that s/he should “leave the chat room and stay offline”. The other participants are also signed off.

When the participant opens the link, s/he is given the following instructions for the distracter task (line bisection task):

“On the next few screens you will be presented with several lines. The goal of this task is to find and to signal the midpoint of each of the horizontal lines. To successfully complete this task, both members of the team must signal correctly the midpoint of the line.”

After each trial, participants are given bogus feedback about the task. On eleven of the fourteen trials, a positive message is shown on the screen congratulating the participant because both team members have been successful. On three trials, a negative message states that someone has failed, along with some encouragement. Next, participants fill out the dependent measures, demographics, and at the end participants are thanked, debriefed and tested for suspicion.

2.4.1.4. Dependent variables

2.4.1.4.1. Gratitude

Participants rated to what extent they felt *gratitude* toward the other member of the team on a 7-point Likert scale (1= not at all; 7 = extremely).

2.4.1.4.2. Social relationships

Participants completed the same *communal sharing* ($\alpha = .87$) and *equality matching* ($\alpha = .84$) scales as in Studies 1 and 2, but regarding an imagined future

relationship. All the items were presented in the future unreal conditional (e.g., “‘*What’s mine is yours’ would be true of this relationship*”).

2.4.2. Results

To test our main hypothesis, we performed a regression analysis with communal sharing and equality matching as predictors and gratitude as the dependent variable. As predicted, only communal sharing predicted gratitude ($\beta = .33, p < .01$) when controlling for equality matching ($\beta < .1, ns$).

Testing our second prediction with a GLM, we found a main effect of benefit on communal sharing, $F(1, 135) = 19.00, p < .001$. Participants indicated more communal sharing in the self-related benefit condition ($M = 3.54, SD = 1.26$) than in the other-related benefit condition ($M = 2.65, SD = 1.14$). Next, we tested the link between benefits and gratitude. As predicted, the effect of benefits on gratitude was not statistically significant, $F < 1, p = ns$.

Therefore, we tested the indirect effect of benefit on gratitude via communal sharing with a mediational analysis, as suggested by Preacher and Hayes (2004). The results revealed that communal sharing mediates the relation between benefit and gratitude (total indirect effect of 0.49 ($SE = 0.15$); 95% Confidence Interval [0.25; 0.87]; $p < .001$). Participants in the self-related benefit condition perceived the relationship with the unknown interaction partner as more communal sharing, which in turn increased gratitude⁷. We tested the reverse path: benefit as the independent variable, gratitude as the mediator and communal sharing as the dependent variable. This path was not statistically significant (total indirect effect = 0.04, $SE = 0.07$; 95% CI [-0.09; 0.21]; $p = ns$).

⁷ We conducted the same analysis with equality matching as the mediator, however, the total indirect path was not statistically significant (0.11, $SE = 0.09$; 95% CI [-0.02; 0.34], $p = ns$).

2.4.3. Discussion

We again replicated the finding that applying the communal sharing model increases gratitude. Furthermore, we find that receiving a benefit directly increases the likelihood of imagining a future relationship with an unknown fellow student as communal sharing. Moreover, responding to a non-face-to-face interaction with the idea of relating in a communal way increased gratitude felt toward the interaction partner. This pattern did not extend to equality matching. Based on this finding, we propose that non-contingent benefits signal a communal way of sharing resources to which individuals respond by applying a communal sharing model. Subsequently, they feel grateful for the benefit to the extent that they apply the communal sharing model.

2.5. General Discussion

Across three studies, we found that gratitude for a benefit received was predicted by perceived communal sharing with the benefactor. This was the case when we asked participants to imagine receiving a benefit from a new acquaintance (Study 1), when we asked them to recall a large benefit received from a friend (Study 2) and when they received a benefit from a stranger in an experimental situation. In all of these cases, scores on a scale measuring the amount of communal sharing in the relationship predicted gratitude also when controlling for other relational models, but no other relational model predicted gratitude when controlling for communal sharing. Specifically, in all three studies, we also measured equality matching, and in Studies 1 and 2 we measured authority ranking in addition.

Taken together, these results show that communal sharing is an important link connecting benefits and gratitude: people are grateful for benefits that are offered within a communal relationship. The communal relationship can either be already established

before the benefit (see Studies 1 and 2) or the benefit can signal communal intentions of the benefactor and thereby activate the communal sharing model in the receiver (see Study 3).

2.6. Relational Models Theory

We based our hypothesis on the observation that only in communal sharing, benefits are not provided out of a direct relational obligation or entail such an obligation. However, whereas equality matching clearly entails relational obligations, the case is not as obvious for authority ranking. Within authority ranking relationships, superiors take responsibility for subordinates, for example by helping, protecting or teaching them. Thus, ideally, superiors are responsive to the needs of subordinates. For example, when the relationship with a deity is perceived as one where the deity has all resources and no relational obligations, any benefit the subordinate human receives should lead to gratitude. However, in Western cultures, social norms have shifted in the last decades such that authority ranking is considered as illegitimate in many contexts where it used to be the main model a century ago (West, 1990).⁸ Thus, to test whether authority ranking can lead to gratitude, future studies should use contexts or groups where authority ranking is perceived as a legitimate model by participants.

Relational Models Theory assumes that the function of social emotions is to motivate optimal relational equilibria (Fiske, 2002, p. 172). Gratitude can function to strengthen bonds between partners, whereas anger can motivate a relationship's termination. RMT also predicts that these social emotions are rooted in "relationship-specific heuristics" (Fiske, 2002, p. 171). This means that social emotions reflect a relational state, and they function to promote behavior matching the specific relational

⁸ We also found less authority ranking (3.97) than equality matching (4.31) or communal sharing (4.80) across Studies 1 and 2.

model (Fiske, 2002). Our findings are in line with this theoretical claim. We found that within communal sharing, gratitude reflects the state of having one's needs satisfied (see also McCullough et al., 2001, 2008). This presumably indicates that the relationship works well, and is worth keeping up.

There is a fourth relational model, market pricing. Market pricing is based on proportionality, and it thereby allows the exchange of different kinds of resources, such as money and goods, crime severity and prison time, or apples and pears. Whenever exchange ratios can be specified (2 apples for 1 pear), market pricing is the underlying model. In the present set of studies, we did not include a measure of market pricing. We knew from prior studies that it was not common for relations among friends, fellow students and family in our student population (Brito, Waldzus, Sekerdej, & Schubert, 2011). Furthermore, it should be the least likely to evoke gratitude, as it is usually based on the most explicit, formal kinds of agreements where obligations are strong, and can even be enforced by law. However, future research should include market pricing as well.

In the introduction, we argued that communal sharing leads to gratitude because the communal partner is perceived as intending to fulfill the partner's needs. However, in the present studies, we did not measure perceived intentions. Rather, we measured the perception of the relationship. This is because, according to relational models theory, the representation of a relationship is not primarily about the other person's intentions, nor about one's own intentions, but about the way people respond to each other. Take, for instance, the situation where a person tries to fulfill your needs, but you do not want to be communal with her. In that situation, you would also perceive the intention as a communal intention, but you would not apply a communal sharing model, so you should not feel grateful. Accordingly, the communal sharing model should be a

better predictor of gratitude than perceived intentions. Nevertheless, future studies should include a measure of perceived intentions, and investigate the process through which communal sharing increases gratitude.

In what follows, we will discuss further implications of our findings with reference to the additional assumptions that we tested. However, each of these additional assumptions was only tested in one of the studies, so our conclusions are somewhat more preliminary than for the main finding. Future research is needed to replicate these additional findings.

2.7. The Communal Sharing Model

Communal sharing is defined as a mental representation of a social relation (Fiske, 1992). The construct encompasses communal norms, mutual intentions to fulfill each other's needs, and the expression of the relation, for example, by sharing food, touching, or being close to each other. The communal sharing scale that we used assesses the perceived extent of communality in the relationship. It incorporates all these aspects (see Appendix A) and the good reliability as well as research findings that these items load on one factor, support the theoretical construct (Haslam, 1994). Communal norms, such as a sense of unity, concern for each other's welfare, treating all members of the relationship as equivalent, and free sharing of resources, are also part of many other, prior constructs. For example, a shared concern for each other's welfare and not keeping track of what is given and received are also defining characteristics of a communal orientation (e.g., Clark et al., 1987; Clark, 1984). Similarly, communal strength is described as a construct highly dependent on the adherence to communal norms. The cost that one is willing to incur to benefit a communal partner will be higher

in relationships where more communal norms are applied (Clark & Jordan, 2002; Mills et al., 2004).

A broad measure of communal sharing should therefore predict gratitude, which depends on the perceived intentions of the relational partner, and whether they are valued. It should also predict one's own motivation to meet the needs of the relationship partner, i.e. communal strength. In other words, the relationship between gratitude and communal strength should be fully explained by communal sharing. Our results indeed indicated that this was the case, and that communal sharing independently predicted communal strength and gratitude. Therefore, we suggest that a mental representation of communal sharing relationships precedes both communal strength and gratitude in a relational context. However, we obtained these results in a cross-sectional study. It would be interesting to see if communal strength is also longitudinally predicted by communal sharing, just as gratitude is.

When one focuses on the functions of gratitude rather than on its predictors, prior findings show that gratitude and the expression of gratitude serve to drive engagement in communal relations. Being grateful, expressing and receiving gratitude, all increase motivation to behave according to communal norms (e.g., Algoe & Haidt, 2009; Algoe, 2012; Lambert et al., 2010). These findings can be interpreted in a relational models framework: Equality matching and market pricing relations can be sustained with behavioral intentions. For example, if other parents have taken your child or you want them to take your child some evening you might form an intention to invite their child over to fulfill or create a relational obligation, respectively. Thus, the behavioral intention drives engagement in the relation and reminds one of one's obligations. In communal sharing, however, the benefits given and received do not correspond. Therefore, the feeling of gratitude can take the role of a reminder to be kind

and generous to the relational partner. It is therefore conceivable that gratitude can also enhance communal sharing and communal strength, however, more research is needed to find out when and how this happens. Prior research shows that the expression of gratitude is important for this influence (Lambert et al., 2010). This might point to the importance of factors such as awareness, self-perception, or sharing of the gratitude. Furthermore, frequent gratefulness might enhance communal sharing and communal strength.

2.8. Theories of Gratitude

In Study 2, we found that communal sharing also predicted the gratitude felt regarding the relational partner in general, not just regarding particular benefits. At Times 2 and 3, participants were reminded of a relational partner and indicated their gratitude regarding this person. Gratitude at Time 3 was predicted by communal sharing reported at Time 2.

These results fit into two different theoretical approaches of gratitude: Gratitude as a reaction to responsive benefits, i.e. benefits which respond to one's needs (e.g., Algoe et al., 2008; Algoe, 2012), and gratitude as a reaction to important relationship partners (e.g., Lambert et al., 2010, 2009; Lambert & Fincham, 2011). Our main result was that gratitude for benefits depends on communal sharing. This is in line with the responsiveness account of gratitude, if one assumes that the perception of the responsiveness of a benefit is based on communal sharing. On the other hand, individuals are suggested to feel generalized gratitude regarding relational partners (Lambert et al., 2009). We also found this pattern in Study 2, where, without evoking a benefit, gratitude was predicted over time by communal sharing. Therefore, our results seem to suggest that both approaches can be integrated: communal sharing predicts

gratitude because it means that the communal partner is motivated to meet one's needs both for a current benefit and also across time, in the past, present, and future.

However, in Study 2, we only measured relational models and gratitude regarding the relational partner after participants had already recalled a concrete benefit from that partner. We believe that the three weeks between the measurements minimized the influence of that recall. Nevertheless, a limitation of this study is that we cannot exclude that somehow the memory of the recalled benefit influenced our measures at Times 2 and 3.

2.9. Non-Contingent Benefits as Cues to Communal Sharing

Finally, our results show that certain benefits can also increase the communal sharing perceived in a relationship, thereby having an indirect effect on gratitude via communal sharing. In Study 3, receiving a benefit did not increase gratitude compared to not receiving a benefit. Only those who perceived more potential for communal sharing with the benefactor as a result of receiving the benefit felt more grateful toward her.

We believe that a non-contingent benefit functions as a cue, easy to interpret as showing a communal intention. Based on previous communal experiences, this should prompt an application of the communal sharing model (Fiske & Haslam, 2005).

In the absence of any additional information about the benefactor, the likelihood of applying a communal sharing model will probably be influenced by individual differences in the tendency to be communal with others. In line with this, the self-reported importance of having communal sharing relations correlates moderately (.34) with the average communal sharing score for a sample of relations (Biber, Hupfeld, & Meier, 2008). However, the fact that communal sharing in Study 3 was influenced by

the benefit manipulation shows that situational cues also determine which model is applied, not only inter-individual differences. Furthermore, there is ample evidence that with the same relational partner, different models can be applied in different contexts, even when a dominant model can be identified (e.g., Fiske, 1992, p. 693).

2.10. Conclusion and Outlook

Positive social emotions like gratitude have been found to be very important for motivating individuals to be empathic, caring, and considerate, thereby contributing to the cohesiveness and functioning of couples, families, and larger social units (Keltner et al., 2006). It is therefore important to learn more about these emotions, and the current research builds on and integrates recent work toward this goal by proposing a new predictor of gratitude, the relational model of communal sharing. Convergent evidence that communal sharing predicts gratitude was found in a cross-sectional, longitudinal and an experimental design. These findings are encouraging for testing hypotheses about relational models and other social emotions. According to Fiske (2002), emotions play specific roles in motivating the constitution, maintenance, retribution and termination of relationships depending on the perceived relational model. It is therefore worthwhile for future research to study the role of relational models in emotions like awe, admiration, pride, anger or shame. Furthermore, relational models can be evoked by different types of cues, some of them embodied, like touch or commensalism as cues for communal sharing. Relational models theory thus allows novel predictions for a causal path from nonverbal behavior to social emotions via relational models. Studying these will help understand better the pervasive effects of nonverbal cues and the automatic nature of relationship regulation.

CHAPTER 3: Touch, Communal Relations and Gratitude: How They Interrelate

Gratitude can trigger the need for physical contact. When one feels grateful, it is well accepted to hug the benefactor as a way to express gratitude (Algoe & Haidt, 2009). However, the opposite also seems to be true: Being hugged can trigger feelings of gratitude. The man who started the worldwide known “Free Hugs Campaign” based this action on being hugged by a stranger at the right moment. He described that moment as the greatest thing that ever happened to him. Not surprisingly, hugging is perceived as one of the most central and positive features of gratitude (Lambert et al., 2009). However, to date, there is no experimental evidence that physical contact leads to feelings of gratitude. The present study therefore tested this causal link and the mechanism behind it. We suggest that physical contact embodies a communal relation and therefore increases gratitude for the relation.

Communal relationships are characterized by strong ties among individuals, following an “all for one and one for all” principle (Fiske, 1992). Communal partners feel intimate to each other and physically close. Mental representations of communal relations are based on the conception that bodies are the same or connected in some essential respect (Fiske & Haslam, 2005). Therefore, bodily proximity and friendly physical touch are used to communicate communal feelings. This communication serves to align the relational models of interaction partners in order to improve social coordination (Fiske, 1992). Accordingly, being touched in a friendly way, as an embodied cue for a communal sharing model, should lead to experiencing the relationship as communal (Fiske & Haslam, 2005; Schubert et al., 2008). Here, we test

whether the unobtrusive friendly physical touch of a stranger augments communal feelings toward her in a dyadic situation with minimal direct interaction.

Furthermore, gratitude and communal-oriented relationships are highly related to each other. This link can have different reasons: communal relations are experienced as something valuable, thus something to be grateful for (Gordon, Arnette, & Smith, 2010; Lambert et al., 2009). Communal partners are responsive to each other's needs (Clark et al., 1998; Clark & Jordan, 2002; Clark & Mills, 1979; Clark, 1984; Mills et al., 2004) and the reassurance of being taken care of by the communal partner can induce gratitude (Algoe et al., 2010, 2008; Algoe & Haidt, 2009; Clark, 1984; Lambert et al., 2010; McCullough et al., 2001). The *Find, Remind, and Bind Theory* posits that “within the context of reciprocally-altruistic relations, gratitude signals communal relationship norms” (Algoe, 2012, p. 455). Thus, according to the theory, it is the identification of a high quality communal relationship rather than a presence of a concrete benefit that triggers gratitude. As we have discussed above, physical touch is a cue for communal relationships. Accordingly, we predicted that a friendly physical touch would trigger gratitude. Because physical touch sends communal signals (e.g., to comfort or to bond; for a review see Gallace & Spence, 2010), and communal intentions are closely linked to feeling grateful (Algoe, 2012), we hypothesized that feeling communal toward an interaction partner would mediate the link between physical touch and gratitude.

Moreover, a friendly physical touch also increases the likelihood of evaluating the person who touches as more positive (Hornik, 1992). A request accompanied by a friendly pat on the shoulder leads to greater compliance than without the pat (Guéguen, 2002; D. E. Smith et al., 1982). This is particularly true when the toucher is a liked, rather than a disliked person (Baron, 1971). A brief hand-to-hand touch by a library clerk increases liking and positive feelings for the clerk (Fisher et al., 1976).

Accordingly, we predicted that a friendly physical touch would increase liking. However, we assumed that liking the toucher would not be sufficient to augment feelings of gratitude because gratitude should also depend on the perception that the other would satisfy one's needs (Algoe et al., 2008). Thus, gratitude is a positive emotion toward someone and can promote well-being (Fredrickson, 1998), but it has different preconditions than liking: to feel grateful toward someone, one has to feel communal toward the same person, appreciating the presence of him/her in one's own life (Lambert et al., 2009).

To summarize, we tested the effect of friendly physical touch on self-reported gratitude via the perceived communal sharing and liking for the confederate. We predicted that physical touch would increase feelings of gratitude, and that a feeling of communion (and not liking) toward the toucher would mediate this link.

3.1. Study 4

3.1.1. Method

3.1.1.1. Participants

Thirty-six Portuguese female participants with a mean age of 20.23 ($SD = 2.00$) contributed to the current study. Participants were all students from a Portuguese University⁹. All participants were asked at the end of the study to write down what they thought the study was about. Neither in this answer nor during the debriefing, did anyone mention any suspicion regarding touch, gratitude or communal feelings.

⁹Our criterion for inclusion in the study was that participants were not friends with the confederate. Given that the study was run on a small campus, five participants (three assigned to the touch condition and two assigned to the no-touch condition) were known to the confederate from before the study. Excluding these does not change the results.

3.1.1.2. Dependent variables

All dependent variables were assessed on Likert-type scales from 1 (not at all) to 7 (extremely; See Table 2 for means, standard deviations and correlations).

3.1.1.2.1. Gratitude

After the touch (vs. no-touch), participants indicated to what extent they felt *gratitude* (our *pre-benefit gratitude*) together with other emotions, to disguise the purpose of this measurement. After the benefit we measured again the same emotions, including gratitude (our *post-benefit gratitude*). Both gratitude items were as follows: “*To what extent did you feel grateful regarding your team partner?*”

3.1.1.2.2. Liking index

We computed a *liking index* comprised of one item measuring the perception of the confederate as *nice* (*To what extent do you consider your team partner as nice*) and one item related to *warmth* (*To what extent do you consider your team partner as warm*; $r = .82, p < .001$).

3.1.1.2.3. Communal sharing index

Communal feelings were assessed with a combination of Haslam’s (1994) communal sharing scale (e.g., “*What’s mine is yours’ would be true in this relationship*”). and Lakens and Stel’s (2011) *entitativity* and *rapport* scales, concerning the perception of the team as a social unit (e.g., “*I experience a feeling of togetherness between the individuals in this team*”), and the extent to which individuals were feeling connected (e.g., “*To what extent did both of you feel the same*”; 16 items, $\alpha = .94$, see Appendix C).

3.1.1.2.4. Perceived benefit.

The last item assessed perception of benefit: “*Do you feel you benefitted from something your team partner did?*”

Table 2. Means, standard deviations and correlations of gratitude, communal and liking indices.

Variables	Mean	SD	1	2	3
1. Gratitude	2.97	1.61	--		
2. Communal index	3.57	1.19	.66***	--	
3. Liking index	4.22	1.20	.56**	.70***	--

Note: ** $p < .01$; *** $p < .001$.

3.1.1.3. Procedure

Participants arrived at the lab to participate in a teamwork experiment. The confederate was close to the lab room, allegedly previously recruited for the pair. Both were invited to sit down in a small lab room, seated at separate work stations facing opposite directions. After reading and signing the consent form, they started the experiment on two different computers, where the study was introduced as being about teams. To induce a communal mindset, participants were instructed to write down sentences or words to describe friendship, as follows (Schubert & Giessner, in prep)¹⁰:

¹⁰ Touch is context dependent: being physically touched in a cooperative (vs. competitive) environment increases helping behavior (Camps, Tuteleers, Stouten, & Nelissen, 2012). We induced the communal sharing mindset because we wanted to test the effect of a friendly touch.

“This short survey is about the perception of friendships. We want to know how individuals perceive friendships. In this questionnaire, we will ask you to give a short description about what you think friendship is about. Afterwards, we will ask you to perform an online team task and to answer some questions about your partner, whether this person could be a good friend of you. Research suggests that with only a little information, we can create concrete assumptions and evaluations about people. Therefore, we ask you to answer all questions, even if you think that you do not have enough information about your team partner. Can you tell us what you think is a good friendship? What defines, in your opinion, a friendship? You can type sentences or keywords. Try to think of the five most important things or facts that define friendship.”

No limits regarding time or text length were given. When participants were done, they saw an instruction to call the experimenter. She instructed them when to start the next task: a line bisection task (distractor task), which was allegedly done concurrently with the other participant. Participants were told to read the instructions on the screen and to start the task as soon as they were ready. In the written instructions participants were told to “complete the subsequent task by marking what you perceive as the midpoint of each of 10 horizontal lines, presented on the computer screen. In order to succeed, both team members must correctly indicate the midpoint of each line.” Thirty seconds after starting the distractor task, the experimenter left two pieces of paper on the confederate’s table. In the touch condition, the confederate touched the shoulder of the participant, who was facing the other way, for 1-2 seconds, and gave the participant one of the two pieces of paper. In the no-touch condition, the confederate placed one piece of paper on the participant’s table. Upon completion of the distractor task, participants filled out the gratitude item, the communal and the liking scales. Afterwards, an instruction appeared to call the experimenter.

The experimenter explained that the main team task was a quiz. This quiz would be used to understand teamwork, how people construct networks, and how they accomplish working together. The paper they had received contained several topics for a quiz, and individually they should mark which topic they liked the most and which they liked the least. The quiz topic would be selected according to their preference. After some time, the experimenter took both papers, and announced that the most liked topic of one of them (confederate), was indeed the least liked topic of the other (participant). The confederate intervened asking the participant which topic she preferred. After her response, the confederate said that she was fine with taking the preferred topic of the participant (benefit given to participant). Both were instructed to turn to their computers and to continue responding to the questionnaire, until it was finished, so they could start the quiz. They filled out the post-benefit gratitude item, the manipulation check for benefit, and some demographics. The experimenter finished the study, probed for suspicion, debriefed participants and paid them with a €5 gift voucher.

The experimenter finished the study, probed for suspicion, debriefed participants and paid them with a €5 gift voucher.

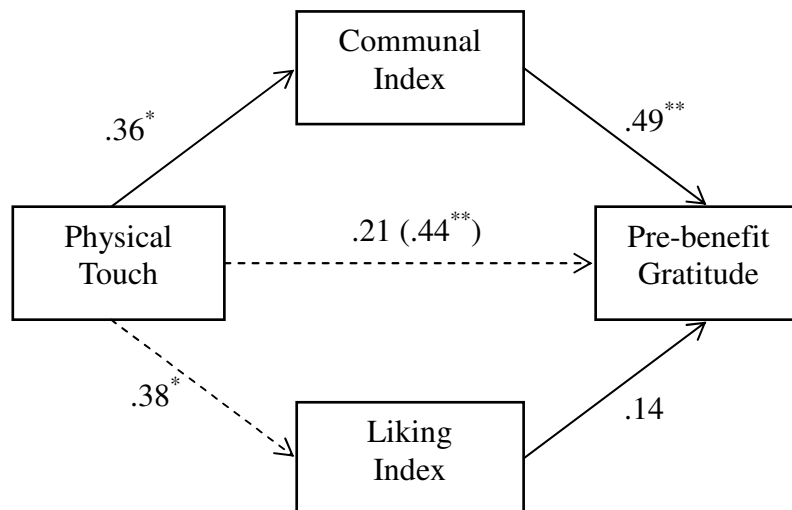
3.1.2. Results

We first conducted a GLM with pre-benefit gratitude as the dependent variable and physical touch as the between-subjects factor. A main effect of physical touch on gratitude emerged, $F(1, 34) = 8.02, p = .008$. Participants in the physical touch condition felt more grateful toward the confederate ($M = 3.67, SD = 1.57$) than did participants in the no-physical touch condition ($M = 2.28, SD = 1.37$).

Second, we tested the effect of physical touch on communal and liking indices. Results showed a significant main effect of physical touch on the communal index, $F(1,$

34) = 5.16, $p = .03$. Participants in the physical touch condition perceived the relationship with the confederate as more communal ($M = 3.99$, $SD = 1.30$) than did participants in the no-physical touch condition ($M = 3.15$, $SD = .90$). Physical touch also showed a main effect on liking, $F(1, 34) = 5.61$, $p = .024$, those who were physically touched liked more the confederate ($M = 4.67$, $SD = 1.19$) than those who were not physically touched ($M = 3.78$, $SD = 1.06$).

Given the significant effects of physical touch on communal index and liking, we conducted a regression analysis to test if either liking or communal index mediated the link between physical touch and pre-benefit gratitude. We conducted a multiple mediation analysis using bootstrapping (Preacher & Hayes, 2004). The results revealed that the effect of physical touch on pre-benefit gratitude was mediated only by the communal index. The total indirect effect had a value of 0.69 ($SE = 0.35$), with a 95% Confidence Interval of [0.12; 1.51], $p = .036$. Looking individually at both indirect effects, only communal index mediated the relation between physical touch and gratitude. The indirect effect via communal index had a value of 0.56 ($SE = 0.36$), and its associated 95% Confidence Interval was [0.02; 1.34]. The indirect effect via liking was not statistically significant, because zero fell inside of the confidence interval, indirect effect of 0.13 ($SE = 0.18$); 95% CI = [-0.09; 0.69] (see also Figure 1 for a test of these relationships in a linear regression model).



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

Figure 1. Results of a regression analysis corroborating that the effect of physical touch on gratitude is mediated by communal index. The numbers are standardized regression coefficients.

To analyze the post-benefit effects, we ran a repeated measures GLM, entering benefit (pre- and post-benefit gratitude) as the within-subjects factor, and the physical touch as the between-subjects factor. No main effect of benefit was reported, $F(1, 34) = 1.38, p = .28$. There was no difference between pre-benefit gratitude ($M = 2.97, SD = 1.61$) and post-benefit gratitude ($M = 3.25, SD = 1.65$). However, a marginal main effect of physical touch emerged, $F(1, 34) = 3.64, p = .065$. Participants in the physical touch condition reported higher levels of both, pre-benefit gratitude ($M = 3.67, SD = 1.57$) and post-benefit gratitude ($M = 3.44, SD = 1.82$), than participants in the no-touch condition (pre-benefit gratitude: $M = 2.28, SD = 1.36$; post-benefit gratitude: $M = 3.06, SD = 1.47$). Additionally, an interaction effect between physical touch and benefit was also significant, $F(1, 34) = 4.49, p = .04$. Simple pairwise comparisons revealed that participants in the physical touch conditions did not show any differences between pre-

benefit ($M = 3.67$, $SE = .35$) and post-benefit gratitude ($M = 3.44$, $SE = .39$, $F < 1$, $p = .51$). However, in the absence of touch, participants reported feeling more grateful after the benefit than before (pre-benefit gratitude: $M = 2.28$, $SE = .35$; post-benefit condition: $M = 3.06$, $SE = .39$, $F(1, 34) = 5.43$, $p = .03$).

Following, we tested again a mediation model, to analyze if physical touch was augmenting post-benefit gratitude via perceived benefit or via communal sharing index. Again, we performed a multiple mediation analysis using bootstrapping, as suggested by Preacher and Hayes (2004). The data showed that communal sharing index mediated the link between physical touch and post-benefit gratitude, even when controlling for perceived benefit, with a total indirect effect of 0.68 ($SE = 0.38$), and its 95% Confidence Interval [0.05; 1.55], $p < .05$. Specifically, communal sharing index was associated to an indirect effect value of .64, ($SE = 0.38$), 95% CI [0.7; 1.60], $p < .05$. Perceived benefit did not significantly mediate the relation of physical touch with post-benefit gratitude, with an indirect effect of 0.04 ($SE = 0.14$), 95% CI [-0.13; 0.53].

3.1.3. Discussion

The current study tested whether physical touch can increase feelings of gratitude. Our results showed that being physically touched (as opposed to not being touched) by a cooperator increases gratitude toward her, and that does not depend on receiving a benefit. Moreover, physical touch augments communal feelings and liking toward the toucher. Additionally, the link between physical touch and pre-benefit gratitude was fully mediated by the communal index, but not by liking, whereas the link between physical touch and post-benefit gratitude was fully mediated by communal index and not by perceived benefit. These results highlight the positive contribution of physical touch for close social relationships. Furthermore, these findings show that

physical touch increases liking of the toucher, but this effect is not responsible for the effect of touch on gratitude.

Physical touch can be seen as a responsive gesture to one's states or feelings. A friendly touch on the shoulder or arm demonstrates attention, care and consideration for one's relational partner. Even if there is not a salient need to be responded to, a friendly gesture can still be perceived as responsive (Reis et al., 2004). We suggest that a physical touch is such a friendly gesture. An assumption of the *find, remind and bind theory* is that gratitude evolved as an emotion to strengthen relationships with responsive interaction partners (Algoe, 2012). If friendly touch is a responsive gesture, our finding that physical touch increases gratitude is in line with this assumption. Further, according to Algoe, a responsive gesture can help identify a high quality relational partner. Our findings are therefore in line with that theory, because they show that friendly physical touch increases the perceived closeness of the relationship.

The scales we used to assess entitativity and rapport encompass aspects of feeling togetherness, unity, common possession of resources and empathic connection. Relational Models Theory suggests that these are all aspects of the communal sharing model of relating to each other (Fiske, 1992). When individuals perceive the cues which embody the intention to relate in a communal way, they automatically activate the communal model, which is a cognitive scheme about the relation, guiding interpretations, actions, motivations and feelings. Physical touch is one cue for the intention to relate in a communal way (Fiske & Haslam, 2005; Schubert et al., 2008). As such, it signals the intention to initiate or to maintain a communal relation, thus confirming and reinforcing the existence of a communal bond. Because individuals find communal relationships rewarding in and of themselves (Fiske, 1992), physical touch thus signals a person's willingness to engage in this rewarding relationship. This

confirmation thus can trigger gratitude regarding the relational partner as a consequence of the communal sharing relationships. Identifying a communal sharing relational partner seems to be sufficient to activate feelings previously categorized according to this relational model.

In this research, we argued that physical touch enhances gratitude. This is particularly true when the communal sharing model is accessible at the time of the touch. However, we do not know whether physical touch would also increase gratitude in an authority mindset, for example. It would be interesting to make this comparison and to test if the effect of touch on communal sharing and gratitude is moderated by the relational mindset. Nevertheless, we believe that the focus of the present research on consequences of communal touch opens new ways of looking at gratitude. Looking at gratitude from a clinical psychology perspective, for example, gratitude can improve well-being by increasing the appreciation of positive things in life (Wood, Froh, & Geraghty, 2010). Likewise, the research points to the importance of touch for creating bonds among individuals by inducing a sense of generalized gratitude for the relation and the promises it holds.

CHAPTER 4: Benefits, Interpersonal Relationships and Gratitude: Main Findings and Future Directions

Across four studies, there is evidence showing that communal sharing can be activated by non-contingent benefits and touch. Gratitude is dependent on the mental representation of communal sharing. In Chapter 2, the results revealed that, when evoking benefits, gratitude was predicted by communal sharing (Studies 1-2). Moreover, neither equality matching (Studies 1-3) nor authority ranking (Studies 1-2) predicted feelings of gratitude toward a benefactor. In Study 3, benefits were manipulated and communal sharing, equality matching and gratitude were measured. Benefits increased the chance to implement a communal sharing model to a future relationship with a stranger. Furthermore, participants only felt grateful to the extent they perceived the future relationship with an unknown fellow student as communal sharing.

Accordingly, I suggest that benefits do not directly give rise to gratitude, but to communal sharing. Gratitude, then, is augmented when individuals perceive a relationship as communal sharing. Thus, in Chapter 3, I tested the prediction that gratitude can be mentally activated by embodied communal cues. Therefore I hypothesized that a brief friendly touch, as a communal sharing cue, would be sufficient to trigger gratitude in the absence of a concrete benefit. The data supported this claim. Participants were induced into a communal mindset to contextualize the physical touch. Receiving a friendly touch increases the likelihood to implement a communal sharing relationship with a confederate than not receiving any touch. Moreover, gratitude was directly increased by touch, regardless of benefits. This link was mediated by communal

sharing. Therefore, I suggest that cues signal relational intentions, and emotions can be a consequence of mental simulations of these relationships.

Overall, the research findings presented above suggest gratitude as a result of communal sharing relationships. This pattern, showed with strangers, suggests that communal sharing relationships drive gratitude both in the presence, and in the absence of benefits. The evolutionary approach for emotions describes them as evolved functional superordinate programs, activated to respond adaptively to a repetitive encounter. Gratitude for benefits evolved to facilitate social exchange and consequently to maintain positive social interactions (Cosmides & Tooby, 2000; Hareli & Parkinson, 2008). When one feels grateful, one takes notice of the benevolence and resourcefulness of the other person. One's relational partner is kind and considerate. This should motivate individuals to keep the relationship active. In sum, benefits seem to be more closely related to the activation of a communal sharing model when interacting with a relational partner, than directly linked to gratitude. This conclusion is strengthened by the finding of feeling grateful in the absence of benefits (Chapter 2, Study 2; Chapter 3): When participants were asked only to focus on the relationship. It is the communal sharing that directly predicts future feelings of gratitude regarding a communal partner. Also a friendly touch was sufficient to increase gratitude in the presence and in the absence of a benefit.

Additionally, the data presented here does not challenge the social functions of gratitude. As a positive and action motivator emotion, it is suggested that feeling and expressing gratitude will reinforce communal bonds among relational partners (e.g., Algoe & Haidt, 2009; McCullough et al., 2001, 2008). However, in the following sections I will discuss gratitude as an outcome of communal sharing relations and their associated cues.

4.1. Gratitude in Communal Sharing Relationships

In the context of Relational Models Theory, Fiske (2002) suggests the importance of socio-moral emotions in social relationships. Emotions motivate action and that seems to be crucial to constitute relationships. People use information from emotional states to decode the appropriate mode to interact with others. Thus, socio-moral emotions function to regulate one's motives and to guide behavior within relationships: love, for example, is an emotion motivating people to invest in satisfactory and rewarding relationships (Fiske, 2002). Research on gratitude has strengthened this claim, proving evidence about gratitude as a communal reinforcer (e.g., Algoe et al., 2008; Algoe & Stanton, 2012; Lambert et al., 2010). However, the findings presented here suggested that gratitude can also be activated by communal cues, such as touch and non-contingent benefits, via communal sharing. Relational models are mental representations of social relationships (e.g., Fiske, 1992), activated by previously acquired knowledge of certain relationship types.

It is suggested that people have relational schemas, or cognitive structures, to process and integrate repeated similar interpersonal experiences, and these structures are useful to help individuals to navigate their social world (e.g., Fiske, 1992). These schemas are helpful to make predictions or to anticipate future events. Imagine going to a restaurant. One knows the appropriate sequence when eating at a restaurant: enter, wait to be seated, order something to drink, choose a dish from the menu, order the food, eat, pay the bill and exit the restaurant (Schank & Abelson, 1977, p. 213).

A schema is a cognitive structure, a network of associations used to organize and guide perception. Thus, it functions as an anticipatory structure, a readiness to search for and to assimilate incoming information. Schematic information processing is selective

and enables the individual to attribute structure and meaning over the incoming stimuli (Bem, 1981; Neisser, 1976). One particular type of schemas is “the script”. As in computer sciences, script language, is used to interpret, instead of compile, and to automate information. Scripts are cognitive structures activated to organize understanding of event-based situations. It allows making inferences about the “potential occurrence of a set of events” and “it involves expectations about the order as well as the occurrence of events” (Abelson, 1981, p. 717). Specifically, scripts can be relational schemas composed of relational information. These, are based on the repeated social situations, and translated into “if-then” rules – “if” this happens, “then” it means that. A model of relational schemas suggests that the new information is categorized according to similar past experiences. Individuals’ current behaviors will be interpreted based on what has been previously, enabling inferences and predictions about relational intentions (Baldwin, 1992, 1997). For example, meeting a friend’s friend, who was ill-mannered in the beginning of an interaction, but who turned out to be altruistic and a good-hearted person, will increase the likelihood that next time one meets an ill-mannered person will expect this person to be a nice person.

In line with this, individuals’ perception happens throughout the interaction between incoming information and individuals’ preexisting schemas (Bem, 1981). Relational partners attribute meaning to incoming social interactions interpreting previous relational scripts associated to relational categories. Given that, communal sharing could activate gratitude in the absence of any concrete benefit, based only on previous relational scripts. Furthermore, benefits influence the willingness of new relational partners to engage in a communal sharing relationship. Gratitude seems to be facilitated by communal relational schemas. That was partly supported by Lambert et al.

(2009) theory on gratitude, assuming that it can be a more generalized concept, and not dependent on beneficial situations.

Following this reasoning, it is possible that gratitude is not the direct outcome of having one's needs responded, as proposed by Algoe (2012). Feeling grateful had been associated to perceived responsiveness, however much of the perceived responsiveness can be attributed to interpersonal relationships (Clark, 1984; Reis et al., 2004). It should be possible feeling grateful by an intentional unneeded benefit. If most of gratitude is about responsive benefits (e.g., Algoe, 2012), then being offered a ticket for a concert, by a friend, who invites you to joining him, would never be a reason to feel gratitude. One can, indeed, feel grateful, but there is no salient need. Only the gesture is considerate. Gratitude should be possible in these situations, as it should be possible in many communal situations. The empirical chapters are in line with gratitude being augmented by communal cues – receiving a non-reciprocal benefit, being reminded of a communal partner or receiving a friendly touch.

4.1.1. Gratitude and Touch

In Chapter 3, the reported data outlined the importance of communal cues to feeling grateful. Thus, being in a communal sharing mindset and receiving a friendly touch increased feelings of gratitude toward the toucher, in comparison with being in a communal mindset but not receiving any touch. However, this link between touch and gratitude (before and after a benefit) was mediated by perceiving the future relationship with a confederate as communal sharing.

This finding strengthened the assumption that gratitude is an emotion embodied in the communal sharing model. Touch is a modal perceptual symbol (embodied cue) for communal sharing relations (Fiske, 2004b; Schubert et al., 2008). Therefore,

receiving a friendly touch from a stranger would allow mental simulations of communal sharing relationships. Theories of embodied cognition suggest that categorization is grounded in perceptual symbols. Categorization is based on both familiar and novel situations, and that allows categorical inferences. The categorization process, which is based on previous knowledge, triggers predictions about the entity's structure, history and behavior, allowing new categorical inferences. Categorical inferences are mental simulations of the previously categorized events (Barsalou, 1999).

Following this idea, individuals can reproduce offline experiences based on simulations. Whenever there is a cognitive representation, it is based on a reenactment, or simulation of the online situation, and there is a meaning attribution to perceptual symbols (e.g., Barsalou, 1999; Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005). If the attributed meaning to touch is caring (e.g., Harlow, 1958; Thayer, 1986), or communion (Schubert et al., 2008), it is then inferred that touch enables the simulation of a communal sharing relationship with the toucher. Communal sharing relationships are characterized by bodily contact, such as touch, hugs, caresses, kisses, etc. All these gestures are about showing caring and consideration for the other person. Touching another person on the arm, or on the shoulder, decreases distance between the two individuals and increases the perception of intimacy (Gallace & Spence, 2010; Thayer, 1986).

If touching is about showing caring and consideration, which is common on communal sharing interactions, then it would explain why one can feel grateful regarding a stranger after a friendly touch. Applying the same logic to the processing of emotional information, feeling grateful after a friendly touch from an unknown fellow student, would be an inference from an "if-then" scripted situation, potentiated by an offline mental simulation of a communal relationship. Theories of embodied emotions

claim that individuals need congruency between bodily states and the context (e.g., sitting upright in one chair while performing an achievement test enhanced the self-reported feelings of pride, Riskind & Gotay, 1982). Gratitude would be a congruent feeling state toward a communal partner, given that touch signals communal sharing (Fiske, 2004b).

Nevertheless, I do not want to make the claim that gratitude is exclusive to communal sharing relations. I suggest that having gratitude embodied in communal sharing relationships means only that gratitude can be facilitated in communal sharing relationships by communal cues, such as touch or non-contingent benefits. These gestures (e.g., touching, hugging, supporting one's needs, responsiveness, benefits, etc.) might be perceived as considerate, and therefore, sufficient to activate gratitude feelings dependent on a communal context. Inasmuch, having a mental representation of a communal sharing relationship should activate gratitude based on considerate gestures. By contrast, appraising a situation as beneficial could be sufficient to trigger gratitude in other relationship models, such as authority ranking.

4.2. Gratitude in Authority Ranking Relationships

I suggest that communal sharing facilitates feelings of gratitude, because of its nature. Part of being in a communal sharing relationship is related to the pleasantness of providing benefits and being attentive to the flow of the relationship (e.g., partner's wishes or needs). Above, I discussed the idea that gratitude is a natural outcome of communal sharing, probably because it is not necessarily dependent on benefits. However, it does not necessarily mean that people cannot feel grateful in authority ranking relationships. Authority ranking is suggested to be a hierarchical model where superiors are entitled to more and better, but the model also considers that superiors

should give pastoral care to subordinates. Thus, being able to provide benefits to a subordinate party should as well increase feelings of gratitude toward the superior.

However, authority ranking and equality matching should differ concerning gratitude. In authority ranking, benefits are given to meet the needs of a subordinate and, very frequently, these benefits are not expected to be reciprocated (Fiske, 1992). For equality matching relationships, benefits suggest the need to reciprocate in kind (e.g., Clark, 1984; Fiske, 1992). Thereby, reciprocation invites to indebtedness whereas non-reciprocation invites to gratitude (Tsang, 2006).

Probably gratitude has more social functions than those which have been suggested. It is possible that gratitude functions differently in authority ranking relationships than in communal sharing. In communal sharing, feeling grateful increases closeness and communal investment (e.g., Algoe & Haidt, 2009; Algoe, 2012; Lambert et al., 2010), but probably, in authority ranking, it can function to maintain the model as asymmetrical. Thus, being provided with a benefit from a superior should increase gratitude, and gratitude should increase the devotion to the superior. Praising superiors is important to the attribution of their status and prestige (Henrich & Gil-White, 2001), which in its turn, is important to maintain the hierarchy, pastoral care and protection. Taking the example of gratitude for gods, individuals feel grateful for gods as a way to show appreciation for all types of goods and gifts they have in life. Goods, such as feeling healthy, or having a job, can be perceived as a gift received from God. Expressing gratitude is a way to perpetuate the God's mightiness, as well as the chance to benefit again in the future.

4.3. The Value of Social Relationships

Humans are inherently social beings, having their life fulfilled with many different relational partners. Individuals move between families, friends, romantic partners, colleagues, superiors, subordinates, among many other relationship types. Interacting with others happens gracefully and repeatedly, indicating that humans are relational beings, psychologically directed to form and sustain social relationships. Particularly, the need for belonging concerns the need individuals have to form and maintain significant, lasting and positive interpersonal relationships. To satisfy this need, people seek for frequent and enduring, affective and pleasant interactions with few others. Thus, most of human behavior, emotions and thoughts are based on interpersonal motives (Baumeister & Leary, 1995).

Establishing social bonds with others is especially important to aid survival. Cooperation among group members augmented the chance of survival in hunting and gathering societies. For example, staying in groups increased mutual aid, protection from predators and enemies. Even though times have changed, social bonding is still crucial to survival: nowadays, having close relationships promotes health benefits and subjective wellbeing (Myers, 1999). Social support and relationship quality influence how individuals perceive burdens: friends make the burdens feel lighter (Schnall, Harber, Stefanucci, & Proffitt, 2008).

By and large, social relationships are extremely valuable for individuals, and emotions play a significant role on the relational regulation, especially positive emotions. Positive emotions have not been in the spotlight as much as negative emotions, but they serve a particularly important function: they are critical to identify and take advantage of environmental opportunities. Thus, selecting the best mate,

committing to marital bonds and engaging in reciprocal kindness are few examples of environmental opportunities which could increase fitness to adaptation (Keltner et al., 2006).

Positive emotions are particularly important to establish healthy social relationships, or to enhance individuals' emotional wellbeing. They are also a coping mechanism to deal with stress and adversity (Fredrickson, 2004). They concern the "broadening up" of a thought-action tendency, allowing building enduring personal and social resources, and investing in positive social relationships (Fredrickson, 1998, 2001). Gratitude, being a positive emotion, is related to investment or maintenance of positive relationships (Hareli & Parkinson, 2008). It promotes approach action: to be involved with others (e.g., Algoe & Haidt, 2009), and people feel grateful regarding relational partners (Lambert et al., 2009). It is important to have social relationships in which people feel the need to share and feel close to each other.

4.4. Limitations and Future Directions

Much has been studied about emotions, and some of this work has been dedicated to gratitude and social relationships. But many questions are still unanswered.

What is the role of communal strength in gratitude? I did include communal strength in Study 1, but I did not follow it up. Further research is needed to understand whether communal strength is an outcome of gratitude, and if this link is triggered by communal sharing. It would be a model worth exploring to understand the communal antecedents and consequences of gratitude.

What is the link of perceived responsiveness both on communal sharing and on gratitude? It would be interesting to explore whether the perceived responsiveness still predicts gratitude when controlling for communal sharing. If perceived responsiveness

concerns relationship orientation (e.g., Reis et al., 2004), then what is the role of gratitude on both constructs? How do they interrelate? Further research is needed to understand this link.

Is gratitude influenced by touch, regardless of the context? Or different mindsets influence different relational outcomes, and therefore other emotions? The limited communal context where touch took place was justified by the ambiguity that touch can create. Depending on the context, touch can be interpreted either as a cooperative or as a competitive gesture (Camps et al., 2012). However, it counts as a limitation not to have a control condition either inducing a neutral mindset or inducing another relational mindset, to fully interpret the findings.

Does touch generally activate gratitude? Or is it specific for females? Females, in comparison with males, are more comfortable with touch, given they are, more often, recipients of touch from close partners (e.g., Fisher et al., 1976). It would be interesting to extend this study with male participants and see whether the reported effect stands.

Additionally, I wonder about cultural values of touch. Would this effect be replicated in a culture where people do not touch each other so frequently, or where touch is not socially accepted? Portugal is a country where people have few constraints with touching each other: cheek kissing is a normal ritual and it goes beyond friendship or closeness among individuals. It is frequent to cheek kiss acquaintances or someone you are meeting for the first time. It stands as a limitation not having collected more data in countries where touch is seen differently than Portugal. Further research could explore this limitation.

4.5. Concluding Remarks

After your computer breaks down, and someone lent you her computer, so you can meet your deadline, you end up feeling grateful. That is what is expected. But if someone charges you at the end, gratitude might not be the emotional outcome. I would say that relational expectations, embedded in previous relational structures, can trigger emotions for many situations. Individuals would not expect to be charged for help. Therefore, relational expectations have a strong influence on when to feel grateful.

Even though this research contains limitations here and there, I believe it opens a new road to gratitude. This set of four studies opens more questions about the role of communion in gratitude. Much was researched in the last decade about feeling grateful, namely the relational context influenced by gratitude, but there is still a lot more to understand. I think this can add a little advancement to the understanding of gratitude as a *communal-facilitated* emotion. It is not only a positive, benefit-triggered emotion; it is also driven by close positive interactions functioning to promote this closeness as long as possible.

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Appendix A

Items for Communal Sharing, Authority Ranking and Equality Matching used in Chapter 2 and Chapter 3

Communal sharing:

1. This person would “give the shirt off their back” for you
2. “What’s mine is yours” is true of this relationship
3. You share food with this person
4. If this person needed help, you could cancel plans to give it
5. “One for all and all for one” is true of this relationship
6. What happens to this person is almost as important to you as what happens to you

Authority ranking:

1. One of you calls the shots in this relationship
2. One of you takes most of the initiatives
3. One of you backs the other up in this relationship
4. One of you takes most responsibility in this relationship
5. One of you protects the other
6. One of you tends to lead

Equality matching:

1. Your relationship is organized on a 50 : 50 basis
2. You are pretty equal in the things you do for each other
3. If one of you does something for the other, the other tries to do the same thing in return next time

4. You often take turns doing things
5. If you share something, you divide it down the middle
6. You more or less keep track of favors and obligations

Appendix B

Items for Communal Strength used in Study 1, Chapter 2

1. How far would you be willing to go to visit this person¹¹?
2. How happy do you feel when doing something that helps this person?
3. How large a benefit would you be likely to give this person?
4. How large a cost would you incur to meet a need of this person?
5. How readily can you put the needs of this person out of your thoughts?
6. How high a priority for you is meeting the needs of this person?
7. How reluctant would you be to sacrifice for this person?
8. How much would you be willing to give up to benefit this person?
9. How far would you go out of your way to do something for this person?
10. How easily could you accept not helping this person?

¹¹ All the items were responded concerning the person who was named by the participant in the beginning of the survey.

Appendix C

Entitativity and Rapport Items used to compute the communal index variable from
Chapter 3

Entitativity:

1. I feel the people in this team are a unit
2. I think the people in this team can act in unison
3. I experience a feeling of togetherness between the members of this team
4. I feel the people in this team are as one

Rapport:

1. To what extent do you think the individuals liked each other
2. To what extent do you think the individuals were aware of each other
3. To what extent do you think the individuals felt coordinated with each other
4. To what extent do you think the individuals felt the same
5. To what extent do you think the individuals understood each other
6. To what extent do you think the individuals had a feeling of mutual agreement