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„Multi-Level Dynamics of Affective Behaviors in Text-Based Online Negotiations: Impacts on Negotiation Success and Impacts of Decision Support“

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ABSTRACT

The present work studies the dynamics of emotional behaviors in text-based online negotiations, the impacts of these dynamics on negotiation success and failure, as well as the impact of a decision support system on these dynamics. For this purpose a multi-level research framework is introduced, outlining how affective behaviors enact and shape the negotiation process over time, and how intra-personal and inter-personal effects of affective behaviors contribute to the evolvement of the negotiation process. Affective behaviors are conceptualized in line with a two-dimensional perspective of affect and measured via multidimensional scaling. Phase model theories are used to capture the dynamic evolvement of the negotiation process, and statistical methods and models suited for the analysis of dyadic interaction data, such as the actor-partner interdependence model, are used to capture the dynamics of affective behaviors in and throughout the negotiation process. Overall, the present work shows that the dynamics of affective behaviors change over time in text-based online negotiations, that these dynamics differ between successful and failed negotiations, and that the provision of a decision support system has an impact on these dynamics. Consequently, the provided results indicate that emotions are important factors of influence in text-based electronic negotiations, and further provide initial empirical evidence showing that the research on and design of decision support systems should incorporate their impacts on the affective behaviors of the supported negotiators.

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Introduction

This work investigates emotional behaviors in text-based dyadic online negotiations and the impact of decision support thereon. Although a considerable amount of research already addressed the impact of emotions in (particularly face-to-face) dyadic conflict situations and negotiations, affective behaviors require more attention in virtual text-based environments, not only because the use of electronic negotiation systems is increasing, but also because the impact of emotions may differ in electronic negotiation contexts. Available literature shows that emotions are central drivers of human behaviors and that affective behaviors emerge out of inter-individual interaction processes as well as shape these continuously. The goal of the present work is to examine "emotions in action", meaning the dynamic effects of affective behaviors in and throughout the negotiation process. To accomplish this goal the analysis of affective behaviors follows a multi-level research framework, incorporating procedural as well as behavioral dynamics. Procedural dynamics include the investigation of the negotiation process as continuous process of interaction, and explain the change or stability of affective behaviors from the beginning to the end of the negotiation encounter. Behavioral dynamics include the investigation of effects that explain the affective behaviors of negotiators in interaction, in and throughout the negotiation process. In particular, we investigate inter-personal as well as intra-personal effects of affective behaviors, and show that affective behaviors influence and are influenced by affective behaviors of the opponent as well as the focal negotiator. Phase model theories of negotiations are used to capture procedural dynamics and investigate affective behaviors in and over the negotiation process. The analyses of affective behaviors that emerge out of and proceed in the negotiation process are based on statistical methods suited for the analysis of dyadic interaction data. One method that is central for this investigation is multilevel modeling, which is used to estimate actor-partner interdependence models. These help us to assess the impacts of the negotiators' own as well as their opponents' affective behaviors on subsequent affective behaviors. The elicitation or measurement of affect is based on multidimensional scaling, in line with a two-dimensional perspective of affect. Overall, the results of the present research efforts show that affective behaviors differ between successful and failed negotiations, in and over the negotiation process. Also, we find that investigating inter-personal and intra-personal effects of affective behaviors provides us with a more precise understanding of the negotiation process, and enables us to uncover effects that would remain hidden if the analysis of affective behaviors would be based on one of these effects or dyad level averages only. For example, we find that the evolvement patterns of affective behaviors are very similar in the first two thirds of successful and failed negotiations, when relying on dyad level averages. However, we find that successful negotiations differ from failed negotiations already very early with respect to inter-personal and intra-personal effects of affective behaviors. Moreover, we show that the provision of a decision support system has significant impacts on the affective behaviors throughout the negotiation encounter. One central and important conclusion to draw from this finding is that the analysis as well as design of decision support systems should also be based on their potential impacts on affective behaviors.

The present work is structured as follows: Part A provides a theoretical introduction with respect to emotions in negotiations and text-based online negotiations, as well as a definition of emotions and affect. Also, the issue of how emotions are expressed in text-based environments is addressed. Part B discusses how the dynamics of affective behaviors are understood in the present work. We outline the issue of procedural dynamics and introduce a three-phase model that is used to conceptualize the negotiation process. Also, the issue of behavioral dynamics is elaborated, followed by an explanation of how intra-personal and inter-personal effects contribute to and shape these. Finally, a joint discussion explains how procedural and behavioral dynamics contribute and give rise to the dynamics of affective behaviors. Finally, Part B concludes with a presentation of hypotheses and research questions derived from the literature discussed in this part. Part C introduces the issue of decision support in negotiations and explains why support may impact affective behaviors. This part also concludes with a presentation of research questions that will be addressed in the empirical part of the work. Part D introduces the data, the methods employed, and the research framework. Finally, Part E provides the results of the analyses, in line with the multi-level research framework.

PART A – Emotions and the Virtual Negotiation Context: Theoretical Introduction

The current Part A gives an overview of research on emotions in negotiations and in particular in online negotiations. Chapter A.1 provides an introduction with respect to this issue and points out why it is important to consider emotions in negotiations at all. Chapter A.2 advances a definition of emotion and explicates how the terms emotion and affect are understood and used in the present work. Chapter A.3 provides a more detailed introduction and discussion with respect to emotions in text-based online negotiations. First, two contrasting perspectives, the cues filtered-out and cues filtered-in perspectives, are introduced to summarize research efforts dealing with emotions and affect in online negotiation environments. Subsequently, it will be laid out in detail how emotions and affect can be communicated in text-based negotiations, based on theoretical and empirical research in this domain of interest.

A.1. The Importance of Considering Emotions in Negotiations: A Primer

Negotiations have long been regarded as strictly rational processes (Forgas, 1998; Thompson, 1990) in which emotions have been viewed as negative factors breaking rationality (Adler, Rosen, & Silverstein, 1998; Kumar, 1997; Schroth, Bain-Chekal, & Caldwell, 2005). Within this perspective negotiations were simply regarded as resource allocation and problem resolution mechanisms (Barry, 2008). Although negotiations are means for resolving conflicts, the process of negotiating is more socially oriented and emotional than initially suggested, and should also be recognized as such (Barry, 2008; Barry, Fulmer, & Van Kleef, 2004). Furthermore, the somewhat traditional advice to suppress emotions in negotiations has been found to be counterproductive, as a suppression of emotions was shown to disrupt communication, constrain relational development, and limit information processing capabilities (Butler, Egloff, Wilhelm, Smith, Erickson, & Gross, 2003; Shapiro, 2002). For a more comprehensive overview regarding the historical development of research on emotions in negotiations see, for example, Barry, Fulmer, and Van Kleef (2004), or Barry (2008).

Nowadays there is consensus that emotions are important and necessary factors that contribute to and shape the evolvement of negotiation processes (Adler et al., 1998; Barry et al., 2004; Barry & Oliver, 1996; Butt, Choi, & Jaeger, 2005; Carnevale, 2008; Carnevale & Isen, 1986; Druckman & Olekalns, 2008; Kumar, 1997; Martinovski & Mao, 2009; Morris & Keltner, 2000; Olekalns, Robert, Probst, Smith, & Carnevale, 2005; Pietroni, Van Kleef, De Dreu, & Pagliaro, 2008b). This argument is grounded in the understanding that emotions are characteristics that are inherent to human behaviors (Forgas & George, 2001; Izard, 1993; Kelly & Barsade, 2001; Parkinson, 1996), which drive social interactions such as inter-personal negotiations (Keltner & Buswell, 1997; Keltner & Gross, 1999; Keltner & Haidt, 1999; Obeidi, Hipel, & Kilgour, 2005). Accordingly, negotiations can be regarded as being strongly impacted by emotions, since they are conducted by human beings interacting on a social level. The necessity to put a stronger focus on the influence of emotions in and on negotiations is additionally underlined by research pointing out that emotions are constantly present and interfering (Keltner & Gross, 1999; Levenson & Gottman, 1983; Morris & Keltner, 2000; Shapiro, 2002) and therefore barely escapable in any form of social interaction (Ekman, 1992; Shapiro, 2002, 2006). Or as Barsade, Ward, Turner, and Sonnenfeld (2000) put it, with reference to Ekman (1992), “emotional states are reliably observable and can "leak" even when people are trying to hide them” (Barsade et al., 2000: 804).

In line with these general conclusions, emotions can and need to be regarded as important factors of influence in negotiations as they emerge from and further influence the social behaviors of interdependent individual negotiators. Within this situation of interdependence, the experience of emotions expressed by an opponent is believed to impact a negotiator’s perceptions and subsequent behaviors (Barry & Oliver, 1996), which may, for example, result in the adoption of a more cooperative or competitive negotiation style (Forgas, 1998; Kumar, 1997). In this respect, Lazarus (2001), for example, talks about “emotional regard” and stresses the important impact feelings have on negotiators and thereby on the progression of the negotiation. Similarly, Frijda, Kuipers, and Ter Schure (1989) argue that emotions constitute “action tendencies”, and therefore directly influence individual decision making as well as behavioral orientations, which was also shown in related studies by Carnevale and Isen (1986), Isen, Daubman, and Nowicki (1987), or Forgas (1998). Lerner and Keltner (2000) as well as Forgas (1995) further provide evidence for the link between emotions and judgment and choice. Moreover, emotions were shown to impact performance and conflict resolution (Douglas, 1962), trusting behavior (Deutsch & Krauss, 1960), commitment and bonding (Kopelman, Rosette, & Thompson, 2006), risk-taking behavior (Hollingshead & Carnevale, 1990), confidence and self-esteem (Kramer, Newton, & Pommerenke, 1993), or prosocial behaviors (Eisenberg, Fabes, Miller, Fultz, Shell, Mathy, & Reno, 1989). Also, it was shown that negative emotions, such as anger, can induce lower joint gains (Allred, Mallozzi, Matsui, & Raia, 1997) and more competitive behaviors (Forgas, 1998). Such detrimental effects of negative emotions were also found in more recent studies by Van Kleef, De Dreu, and Manstead (2004a) and Friedman, Anderson, Brett, Olekalns, Goates, and Lisco (2004), who generally showed that individual actions of negotiators are highly influenced by the emotion anger. In addition, it was found that risk perceptions are influenced by negative emotions such as anger or fear (Lerner & Keltner, 2001). Positive emotions, in contrast, were found to be related to more cooperative behaviors (Barsade, 2002), innovative thinking and problem solving (Carnevale & Isen, 1986; Isen & Daubman, 1984), or risk taking behaviors (Isen & Patrick, 1983).

In sum, most empirical evidence highlights the important and comprehensive impacts of emotions (cf. Conlon & Hunt, 2002) and suggests that positive emotions have a positive influence on the negotiation process and its outcome, whereas negative emotions have a negative influence on the negotiation process and its outcome (Broekens, Jonker, & Meyer, 2010). Other studies, however, point out that such a simple distinction in “good” or “bad” emotions disregards the complexity of emotions (Barry, 2008), as it was for example found that negative as well as positive emotions may both be used to claim value in negotiations (Kopelman et al., 2006). The rationale for this effect, that expressed positive as well as negative emotions may results in similar outcomes, can be related to variations in the negotiation context, negotiation task, and largely to differences in the use and interpretation of individual behaviors and emotions. Negative emotions may, for example, be used to signal an opponent the importance of specific issues under negotiation (Kumar, 1997; Morris & Keltner, 2000), or serve as gesture of apology, for instance, when expressing shame or embarrassment (Eisenberg et al., 1989; Keltner & Buswell, 1997). To the contrary positive emotions may, for example, foster unreasonably high expectations (Barry & Oliver, 1996), or deter negotiators from critically assessing an opponent's arguments (Kumar, 1997).

Relatedly, Morris and Keltner (2000) further refer to emotion as "interpersonal communication system" that enables negotiators to resolve relational problems, because emotions also influence the way people communicate with others as well as what they communicate. Since negotiations are naturally characterized by incomplete or limited information, emotions thus provide additional and valuable information to the negotiation context. This added value of emotional communication or information may, for example, help to understand a negotiation partner's intentions, beliefs, or current mood (Ekman, 1993; Mineka & Cook, 1993; Scherer, 1999; Scherer, Schorr, & Johnstone, 2001), and enable a negotiator to identify specific issues under negotiation that are more important than others for his or her counterpart (Mineka & Cook, 1993; Morris & Keltner, 2000; Parkinson, 1996; Thompson, 1990; Van Kleef, De Dreu, & Manstead, 2004b). In this respect, emotions can be regarded as central to inter-personal communication as they provide additional information and serve as additional guidelines for individual judgments and behaviors (Solomon, 1989).

It is therefore important to consider that emotions do not only simply trigger specific behaviors, conflicts, or (dis)satisfaction, but that they further allow negotiators to, explicitly or implicitly, signal to their counterpart when and if individually important issues are being addressed (Lazarus, 2001; Obeidi et al., 2005), detect high-risk situations, and build awareness that negotiated issues might be at stake (Adler et al., 1998). These findings that emotions may substitute missing but necessary information, as well as that they influence communication and behavioral processes, additionally indicate their central influence on the development of the relationship between the negotiators (Adler et al., 1998; Allred, 2000; Barry & Oliver, 1996; Hegtvedt & Killian, 1999; Shapiro, 2002). In line with this argumentation Kopelman, Rosette, and Thompson (2006), for example, provide evidence that positive emotions largely influence the relationship between negotiators and thereby impact the negotiation outcome as well as negotiators' dispositions to engage in future encounters with the same counterpart. Consequently, emotions can be regarded as vital factors for the progression of a negotiation and ultimately for negotiation success or failure.

Additional evidence for the interrelatedness of emotions, behaviors, and communication is provided by research on cognitive processes. Here it is, however, important to note that research with respect to these issues for long put a strong focus on "rational" cognitive processes only and largely disregarded the interrelations with emotions, which were regarded as "non-rational" (Conlon & Hunt, 2002). Nevertheless, the recognition that the negotiators' behaviors cannot only be explained by the axiom of rationality induced a shift in attention and led to the understanding that cognitive processes include "rational" as well as emotional instances (Bazerman, Curhan, Moore, & Valley, 2000). In fact, being "rational" does not exclude but rather include emotions (Maitlis & Ozcelik, 2004), since expressing anger as response to an unfair offer can be described as a rational reaction. Although emotions are without doubt not always "objectively rational", neither is other behavior. Hence, emotions are conceptualized as performing "several basic cognitive functions" (Duncan & Feldman Barrett, 2007: 1184), and can thereby be argued to shape and contribute to rational as well as non-rational behaviors. The important point thus is that emotions and cognition are not mutually exclusive but rather work complementary (Barry, 2008; Barry & Oliver, 1996; Bower, 1991; Duncan & Feldman Barrett, 2007; Forgas, 1995), which means that emotions also impact thought, judgment, information processing, preference formation, and the decision making process, and thereby influence behaviors directly as well as indirectly (Forgas, 1995, 1998; Isen et al., 1987; Maitlis & Ozcelik, 2004; Mayer, Gaschke, Braverman, & Evans, 1992; Sedikides, 1995). For a more detailed discussion regarding these issues see, for example, Broekens, Jonker, and Meyer (2010).

More recent empirical evidence for this interrelation is, for example, provided by Carnevale (2008) who showed that affect moderates the individually perceived outcomes in a negotiation and thereby confirms that cognitive reference points are affected by emotions. Pietroni, Van Kleef, and De Dreu (2008a) further show that using affective expressions in communication results in increased attention to contextual cues. Accordingly, people try to focus on and understand their environment better when emotions are present, which implies that emotions foster cognitive processing. Social interactions, such as negotiations, thus are not influenced by either cognitive or emotional processes, but rather jointly by both (Duncan & Feldman Barrett, 2007; Kopelman et al., 2006; Maitlis & Ozcelik, 2004).

The interrelatedness of emotions and cognitive processes, as well as the important role of emotions for and in communication and inter-personal behaviors, overall indicates that emotions drive individual and inter-personal behaviors of negotiators to a large extent and accordingly shape the negotiation process. Consequently, it can and should not be assumed that emotions are bound to and isolated within individual negotiators, but rather that they provide additional meaning to individual negotiators as well as to the negotiation process as a whole, on an ongoing basis. Hence, emotions are neither simple, nor rigid or static phenomena, but to the contrary are complex, dynamically evolving, and changing within and throughout negotiations (Barry & Oliver, 1996), which also means that they can path the way toward negotiation success but also toward negotiation failure.

A.2. Defining Emotions

The first important step to approach the analysis of emotions in negotiations is the provision of a proper description and definition of emotions. Evidence that this issue has been tackled extensively and by many researchers is, for example, provided by Strongman (1996) who outlines and summarizes more than 150 different theories of emotion. One reason for the multiplicity of theories of emotion is that these were developed within different fields and disciplines of research, which is not surprising since emotions basically relate to almost every aspect involving human behavior. With respect to this issue Barry, Fulmer, and Van Kleef (2004) provide a classification of theories of emotion and summarize these in four general categories as, psychophysiological (e.g., Ekman & Davidson, 1993), language-analytic (e.g., Russell, 1980; Watson & Tellegen, 1985), psychosocial (e.g., Lazarus, 1991), and social constructivist (e.g., Averill, 1980) models. Moreover, recent publications seeking to advance a more unified definition of emotion (e.g., Berridge & Winkielman, 2003; Russell, 2003; Scherer, 2005) trace back this effort to an essay by James (1884) entitled “What is an Emotion?”. Since then over a century has passed and the question initially posed is still highly valid and, as it seems, not answered satisfactorily.

Nevertheless, most researchers tend to agree on certain general terminologies with respect to emotions, in particular how to differentiate the terms affect, mood, and emotion. Affect is usually used as “an umbrella concept” (Barry et al., 2004: 72) or superordinate term that comprises moods, emotions and everything else connected to these constructs (Broekens et al., 2010). It includes aspects of state-effect, that is reactions to situational stimuli, and trait-affect, that is dispositionally induced reactions (Barry et al., 2004; Broekens et al., 2010; Watson, Clark, & Tellegen, 1988). Moods, for example grumpy, are characterized as not being directed at a certain stimulus, such as a person, an object, or a situation (Barry et al., 2004). Also, moods are considered to be more pervasive, more diffuse, and of lower intensity (Forgas, 1995). Emotions, for example angry, in contrast, are characterized as being directed at certain stimuli, more intense, short-lived, and volatile (Barry et al., 2004; Broekens et al., 2010; Forgas, 1995; Gratch, Marsella, & Petta, 2009). Moreover, emotions and moods are not independent from each other. Emotions may induce a distinct mood, just as moods may induce emotions (Barry & Fulmer, 2004a). Based on this rather general terminology, emotions can be understood and conceptualized more profoundly in line with a discrete perspective or a dimensional perspective (Broekens et al., 2010; Cowie & Cornelius, 2003; Gratch et al., 2009; Mauss & Robinson, 2009). Although these distinct perspectives propose different conceptualizations of emotions, they also share certain understandings of emotions that need to be outlined before a more profound definition of the term emotion can be advanced.

A.2.1. The Discrete Perspective of Emotions

This perspective generally outlines “that each emotion […] corresponds to a unique profile in experience, physiology, and behaviour” (Mauss & Robinson, 2009: 211). In this respect, discrete emotions are often characterized in terms of different emotion-forming components (i.e., appraisals), or different emotional categories.

The conceptualization of emotions based on emotion-forming components is mainly shaped by cognitive appraisal theories, which basically explicate that emotions are linked to anterior functions of the organism (Broekens et al., 2010; Gratch et al., 2009; Smith & Ellsworth, 1985). In particular, it is the appraisal of the environment or one’s context, which is believed to be responsible for differences in emotional experiences (Scherer, 1999). In other words, the meaning attributed to a context by an individual precedes his or her emotional responses (Parkinson, 2009). Hence, different appraisals of events are responsible for different emotions (Frijda, 2009). Since these different appraisals are based on different cognitive processes it is concluded that the interpretation of environmental stimuli is cognitively driven (Broekens et al., 2010). Emotions are thus viewed as resulting from cognitive evaluations, which are necessary for attributing personal relevance to contexts (Scherer et al., 2001). The central issue is that of personal relevance or meaning attributed to a situation. Accordingly, similar contexts may be interpreted very differently and result in different emotions, just as very different contexts may be interpreted similarly and result in similar emotions (Balahur, Hermida, & Montoyo, 2012; Parkinson, 2009). Hence, the organism's cognitive evaluation, or appraisal, of a situation is assumed to be influenced by various cognitive dimensions or factors of judgment (Smith & Ellsworth, 1985), referred to as appraisal variables or criteria (Balahur et al., 2012; Gratch et al., 2009). Importantly, distinct appraisal variables are believed to be related to distinct appraisals, which further relate to distinct emotions. Thus, the kind of emotion being experienced depends on the activation or deactivation of certain appraisal variables (Cowie & Cornelius, 2003). Depending on the appraisal variables of interest, as well as on the emotions of interest, different interconnections between certain appraisal variables and emotions have been found. Thus, there is no truly universal conceptualization of emotions in line with appraisal theories, due to the existence of different appraisal theories. Scherer (1999), for example, outlines the following five appraisal categories: novelty, intrinsic pleasantness, goal significance, coping potential, and compatibility standard. These further contain 16 distinct appraisal variables. Lazarus and Smith (1988) in contrast, consider the following four appraisal categories: "intrinsic characteristics of objects and events", "significance of events to individual needs and goals", "individual's ability to cope with the consequences of the event", "compatibility of event with social or personal standards, norms and values" (Balahur et al., 2012: 743). Further, Smith and Ellsworth (1985) propose eight more "universal" categories, based on the argument that each of these has already been used in at least one distinct appraisal theory. Others opt for a more narrow or specific categorization by putting the focus on, for example, agents in interaction, or objects (i.e., things) only (Ortony, Clore, & Collins, 1988).

Although researchers focus on different appraisal categories and variables, it is argued that the obtained results are not mutually exclusive (Cowie & Cornelius, 2003) but should rather be understood as complementing each other (Scherer, 1999). Also, it is pointed out that processes of appraisal differ in complexity and function (Leventhal & Scherer, 1987), since some might be more simple, implicit, or unconscious than others (Frijda, 2009), which further explains the existence of different conceptualizations of appraisal (Parkinson, 2009). Nevertheless, the diversity of models, which are being used also shows that results are not perfectly conclusive or stable (Frijda, 2009). One explanation for this issue is that appraisals may be reflected by emotions, but may nonetheless not be the (only) causal elements inducing emotions (Frijda, 1993, 2009). Still, it is not argued that traditional appraisal theories are misleading, but rather that they may only concern some aspects inducing emotions (Parkinson, 2009). In line with this reasoning, some researchers argue that besides classical cognitive appraisal processes, also physiological and behavioral processes need to be considered when defining emotions (Frijda, 2009; Gratch et al., 2009; Scherer, 2004). By doing so one acknowledges that emotions may also result from more subjective, automatic, and short-term evaluations of environmental stimuli (Scherer, 2004). Moreover, appraisals and response tendencies are believed to be interpreted jointly in relation to expected consequences, to assure internal consistency or "unity" (Frijda, 2009: 1457) of experiences. This internal unity relates to the entire meaning of an event and is subject to appraisal, behavioral, as well as automatic processes that give meaning to the context. Accordingly, it is assured that emotions are consistently meaningful in each and every situation (Frijda, 2009). These assumptions are, however, not fully compatible with existing appraisal theories (Frijda, 2009), and may thus need further refinement, or even indicate the necessity for relying on different theoretical concepts in order to define emotions. Put differently, it is argued that appraisal theories "reflect an outdated ''Cartesian" view of the mind as a disembodied symbol system" (Gratch et al., 2009: 3). Accordingly, it is emphasized that emotions may also result from processes different than judgments of appraisal (Clore & Palmer, 2009), which makes a more comprehensive conceptualization of emotions not only tenable but also necessary (Clore & Palmer, 2009; Gratch et al., 2009; Parkinson, 2009). This conclusion is further supported by a lack of correlational evidence assessing the relation of appraisals and distinct responses (Parkinson, 2009). Also, it is proposed to adopt a more dynamic view of emotions as arising and changing from situation to situation and over time (Marinier, Laird, & Lewis, 2009; Marsella & Gratch, 2009), as well as in line with their inter-individual and relational functions (Parkinson, 2009).

The conceptualization of emotions based on emotional categories further presumes that each distinct emotion can be uniquely linked to specific somatic responses (Gratch et al., 2009; Mauss & Robinson, 2009). The aim is to develop a list of words, or an "affective lexicon" (Ortony, Clore, & Foss, 1987), and to link these words with particular discrete emotions. Empirical research, however, only addressed a very limited number of words, and thus emotions, at a time, which means that emotions have been added to an "affective lexicon" in isolation from each other (Butt & Choi, 2006). A categorical conceptualization of discrete emotions is thus generally attested a lack of comprehensibility (Butt & Choi, 2006; Butt et al., 2005). In particular emotions are being categorized and labeled based on commonplace or ordinary language, by using either quantitative (Fehr & Russell, 1984) or qualitative (Ortony et al., 1988) methods (Cowie & Cornelius, 2003). Based on these efforts of classification researchers developed affective lexicons of different volume. For example, Fehr and Russell (1984) outlined 196 distinct emotions, whereas Shaver, Schwartz, Kirson, and O'Connor (1987) outlined 213. The shortcoming of these classifications, however, is that they might not capture "every shade of emotion" (Cowie & Cornelius, 2003: 13), irrespective of how long the list of emotion words may be. In addition there is a trade-off with respect to completeness, universality, comprehensibility, and usefulness that needs to be taken into account. This is exemplified by Cowie and Cornelius (2003) who argue that a list of, for example, 60 words may be too complex to be tractable, but too simple to determine meaningful distinctions. Moreover, a strict classification of emotions may be problematic since one emotional term, for example, anger, may be used and interpreted in different ways. Anger could be further sub-classified as “cold anger” and “hot anger” (Scherer, 1986).

This issue highlights a still open theoretical discussion within this perspective, addressing the problem of which distinct emotions may be defined as being “primary” (Cowie & Cornelius, 2003), meaning which specific emotions could be used as super-categories from which more specific emotions can be derived. One potential answer to this question is provided by “palette theory” (Scherer, 1984) arguing that, similar to colors, specific emotions can be regarded as blends of more primary emotions. Another, more prevalent concept is based on efforts to define more universal emotions as “basic” (Ekman, 1992). “Basic emotions” are believed to be associated with specific functions of the brain and necessary for coping with certain situational stimuli. Ekman and Cordaro (2011), for example, propose a list of seven basic emotions, which are associated with thirteen characteristics that can be used to distinguish between these as well as to distinguish these from other affective factors. One major shortcoming of this approach, however, is that emotions are regarded as static elements that can be sorted and arranged in lists (Cowie & Cornelius, 2003; Ortony & Turner, 1990). Although it could be argued that some emotions are more “basic” or universal than others, this assignment is nonetheless not straightforward, which is indicated by the fact that while some authors describe certain phenomena as “basic emotions” other authors describe the same phenomena as “not basic” or even as “not emotional” (Cowie & Cornelius, 2003). Hence, literature does not provide one consistent taxonomy of terms that could be used to distinguish certain emotions as well as emotion-related states from each other. Due to the lack of one agreed upon emotional taxonomy, researchers tried to identify more parsimonious and general super-categories that could be used to distinguish emotions from each other. These mainly include distinctions in a few prototypical emotions or emotion-related states (Lazarus, 1999; Shaver et al., 1987), distinctions in affective and cognitive components (Ortony et al., 1988), distinctions according to temporal endurance such as fleeting or long-lasting (Cowie & Cornelius, 2003), or distinctions based on valence and arousal (Zammuner, 1998).

In sum, structuring distinct emotions according to pre-established categories is problematic, since the more detailed and complex the proposed structure becomes the more constraints are being imposed. Therefore it is suggested to rely on smaller and more parsimonious categories, representing more sub-facets of emotions, rather than relying on too narrowly specified lists or taxonomies (Cowie & Cornelius, 2003).

A.2.2. The Dimensional Perspective of Emotions

Dimensional perspectives of emotions intend to specify the general, relational structure of affect (Daly, Lancee, & Polivy, 1983), based on the assumption that emotions can be described by a number of underlying affective dimensions (Broekens et al., 2010). Importantly, it is proposed that a large number of emotions can be described by very few, general affective dimensions (Russell, 2003). This presumption is rooted in the understanding that several psychological and physiological commonalties are shared by a number of distinct emotions (Gratch et al., 2009; Mauss & Robinson, 2009; Seo, Feldman Barrett, & Jin, 2008). Put in more simple terms, it is argued that discrete emotions can be defined by certain underlying affective dimensions. Hence the primary issue is to identify these dimensions.

Efforts to do so are first and foremost shaped by discussions about fundamental and basic assumptions, mainly concerning dimensional polarity, dimensional variety, and dimensional structure (Daly et al., 1983). With respect to the first issue, polarity, the discussion centers around the matter whether affective dimensions should be considered as monopolar (i.e., completely independent from each other) or as bipolar (i.e., as opposite dimensional poles) (Green, Goldman, & Salovey, 1993). This difference is not trivial, since a monopolar view assumes no underlying structure whereas a bipolar view assumes that emotions are interrelated in a systematic way (Daly et al., 1983). As will be outlined in more detail in this chapter, researchers are in agreement that affective dimensions are in fact bipolar (Russell, 2003). The issue of dimensional variety refers to the appropriate number of dimensions needed to describe and distinguish emotional states. Here it was for long assumed that a distinction in positive and negative affect is sufficient (Allred et al., 1997; Barry et al., 2004; Carnevale & Isen, 1986). Contemporary research, however, argues that a sole focus on valence (i.e., positive and negative affect) is too restrictive and excludes important elements that are in addition necessary to describe emotional phenomena (Butt et al., 2005). In particular a factor of intensity, arousal, or activation is presumed to be important in that matter (Reisenzein, 1994; Russell, 2003). Finally, dimensional structure addresses the issues of how the affective dimensions are interrelated and in particular how emotions are described based on this interrelation (Daly et al., 1983). Since all of these issues are elemental for a proper definition and understanding of emotions, they will first be discussed in more detail before introducing a complex framework which can be used to define emotions appropriately.

A.2.2.a. Theoretical and Historical Background

The basic assumption of dimensional models of emotions, that emotions can be described by broader affective dimensions, dates back to Wundt (1897) who proposed three bipolar dimensions for doing so: pleasant-unpleasant, calm-excited, and relaxation-tension (Cowie & Cornelius, 2003; Seo et al., 2008). Later Schlosberg (1954) and Engen, Levy, and Schlosberg (1958) presented similar dimensions (pleasantness-unpleasantness, attention-rejection, and sleep-tension) and proposed that emotions are arranged in a circular manner around these. These results, derived from the analysis of facial expressions, were also supported by studies of language based on the semantic differential (Osgood, 1969), showing that words contain affective meanings (Osgood, Suci, & Tannenbaum, 1957; Russell, 1978), which can be described by dimensions of evaluation, potency, and activity (Osgood, 1969; Osgood et al., 1957).

Most subsequent studies could not support the bipolarity of these and similar dimensions and contrastingly argued for independent, monopolar dimensions (Borgatta, 1961; Izard, 1972;

McNair & Lorr, 1964; Nowlis & Nowlis, 1956; Thayer, 1967). The lack of support for bipolar dimensions was, however, relativized based on the argument that response formats of the applied rating scales induced a bias toward monopolar dimensionality (Meddis, 1972; Sjöberg, Svensson, & Persson, 1979). This critique is shared by Russell (1979) who showed that when this methodological bias is corrected, the resulting affective dimensions are indeed bipolar rather than monopolar. Moreover, it is argued that, besides response format, also issues of sampling error, measurement error, response style, or the time period available for data collection, contribute to a bias toward monopolarity (Russell, 1979; Russell & Barrett, 1999). Hence, it is proposed that by resolving these methodological shortcomings the two contrasting views, either suggesting monopolar or bipolar dimensions, can be reconciled (Russell, 1978, 1979; Russell & Mehrabian, 1974, 1977). Assessments of correlations between monopolar dimensions further showed that these are indeed parts of larger bipolar ones, and that many monopolar factors may obscure bipolarity rather than contradict it (Russell & Barrett, 1999). Later research based on the semantic differential provides similar arguments for bipolarity and congruently concludes that bipolar dimensions may have been obscured in previous findings (Bentler, 1969). Consequently, research provides strong evidence for bipolar rather than independent monopolar affective dimensions (Daly et al., 1983; Russell, 1979; Russell & Barrett, 1999; Russell & Mehrabian, 1977).

With respect to the appropriate number of bipolar affective dimensions, one-dimensional solutions are first and foremost considered to be too simple and hence too difficult to interpret, since they provide ample room for speculation (Russell & Barrett, 1999). If more than one dimension is being used, different studies provide different solutions on the number as well as interpretation of dimensions. Some of these studies were already outlined above (Engen et al., 1958; Schlosberg, 1954; Wundt, 1897). Others, for example Mehrabian and Russell (1974) argued for three dimensions of valence, arousal, and dominance. Importantly, these and most other authors are in agreement that at least valence (pleasure-displeasure) and arousal are necessary dimensions to describe emotional phenomena. If more than these two dimensions are being identified, results are, however, less consistent. Some of these additional, contrasting dimensions include level of aggression (Bush, II, 1973), dominance-submissiveness (Russell & Mehrabian, 1974, 1977), control/potency/dominance, depth of experience, or locus of causation (Russell, 1978). In a more recent study Bigand, Vieillard, Madurell, Marozeau, and Dacquet (2005) analyzed emotions that people attribute to music and identified three affective dimensions of which valence and arousal represent two. Their third dimension, however, was found to be difficult to interpret and hence remained innominate. In sum, researchers do not agree on the denomination, and more importantly the interpretation, of more than two affective dimensions, as was initially presumed by Russell (1978). Although it might be argued that such a restriction to two dimensions means accepting a loss of information (Cowie & Cornelius, 2003), research strongly supports a two-dimensional description of affect (Barrett, 1998; Barrett & Russell, 1999; Broekens et al., 2010; Cacioppo & Berntson, 1994; Daly et al., 1983; Kuppens, Tuerlinckx, Russell, & Barrett, 2012; Larsen & Diener, 1992; Reisenzein, 1994; Russell, 1978; Russell & Barrett, 1999; Watson & Tellegen, 1985).

A.2.2.b. Core Affect and Emotional Episodes

One of the most prominent dimensional models of emotions is the circumplex model of affect (Russell, 1980), which is described by the two bipolar affective dimensions of valence (pleasure and displeasure) as well as degree of activation (high and low) (Barrett, 1998; Russell, 1978, 1979, 1980; Russell & Barrett, 1999). Both of these dimensions are defined as subjective feelings or experiences of pleasantness or unpleasantness and activation or deactivation, respectively (Barrett, 1998). A second prominent model is the model of Negative Activation (NA) and Positive Activation (PA) (Watson et al., 1988; Watson & Tellegen, 1985; Watson, Wise, Vaidya, & Tellegen, 1999). Importantly, both of these models consensually assume that the predominant number of emotional phenomena can be explained by two underlying bipolar dimensions (Russell, 1978, 1979; Watson & Tellegen, 1985). Also, it was shown that these dimensions provide a basic structure to emotional phenomena by spanning a two-dimensional Cartesian space, around which affective states are ordered in a circular manner (Feldman, 1995a; Russell, 1979; Schaefer & Plutchik, 1966). Thus, "any affective state may be defined by its placement relative to circumplex dimensions" (Feldman, 1995a: 153). Accordingly, interpretations of the two major bipolar affective dimensions different from the circumplex model of affect (e.g., Thayer, 1978; Watson & Tellegen, 1985) are not at odds with the pleasure-displeasure and degree of activation dimensions, but rather represent rotational alternatives of the affective space (Russell, 1980). Put differently, affective states are interpreted as combinations of the two primary axes (i.e., dimensions) that are being identified (Barrett & Fossum, 2001; Russell & Mehrabian, 1977; Russell & Pratt, 1980). These affective states include emotions such as happy, angry, or sad, as well as emotion-related states such as sleepy, or placid (Barrett & Fossum, 2001), all of which are necessary to describe and express emotional quality with language (Russell & Pratt, 1980). The two principal affective dimensions can thus be regarded as "primitive representation […] of [the] affective space" (Barrett & Fossum, 2001: 334), representing elementary core features central to emotional phenomena (Barrett & Fossum, 2001; Cowie & Cornelius, 2003; Russell & Barrett, 1999). A definition of emotions based on valence and activation dimensions is thus regarded to be more comprehensible than, for example, a definition of emotions based on componential or categorical perspectives outlined in previous chapters, since emotions then are not primarily described by distinct terms or taxonomies but can be described by using words, based on their position in the affective space (Cowie & Cornelius, 2003).

The circumplex dimensions, hence, represent core affective phenomena (Russell & Barrett, 1999) such as distinct emotions or more specifically (prototypical) emotional episodes, that is "short-lived emotional responses that are inherently tied to an object" (Seo et al., 2008: 21). Emotional episodes may further include various components which are interrelated with each other in a complex manner. These include core affect, the experience and affective perception of an antecedent event, focusing attention on a particular stimulus (e.g., an object, person, or event), appraisal and attribution of that stimulus, physiological changes, subjective conscious experiences, emotional meta-experiences, emotion regulation, and instrumental action directed at the stimulus (Russell, 2003). For a more detailed description of these components, as well as a discussion about the interrelation of these, the reader is referred to Russell (2003). The important point here is that core affect is central to any emotional episode, but also that core affect and emotional episodes are not congruent. As will be outlined in more detail below, an important distinction is that emotional episodes are directed at a stimulus and entail cognitive processing (Russell & Barrett, 1999).

Core affect is generally defined as a “neurophysiological state consciously accessible as the simplest raw (nonreflective) feelings evident in moods and emotions” (Russell, 2003: 148) and is regarded as essential for an individual to make sense of his or her environment as well as about changes in the environment (Duncan & Feldman Barrett, 2007; Russell & Barrett, 1999). As indicated, it is a psychologically basic and primitive state that is described by valence and activation. In particular, it is the combination of these two interdependent bipolar dimensions that produces the core affective space, within which the dimensions are interpreted as the primary axes (Russell & Barrett, 1999). The positioning of the axes (i.e., dimensions) is arbitrary, which means that rotating the two primary axes will yield different affective dimensions but will not change the structure of the data. For example, a rotation of the valence and arousal axes by 45 degrees will result in different primary dimensions. The data points on these dimensions are, however, the same as those lying in between the two dimensions before rotating them. The interpretation of these new dimensions is thus compatible with the unrotated ones. Such a 45 degree rotation of the valence and arousal dimensions was proposed by Watson and Tellegen (1985) in their model of Negative Activation (NA) and Positive Activation (PA).

Hence, with respect to psychological states, core affect cannot be further reduced to a simpler construct (Yik, Russell, & Steiger, 2011). Also, core affect is consciously accessible and impacts non-emotional cognitive processes, which indicates that core affect provides meaning about the environment and makes it relevant (or not) for an individual (Duncan & Feldman Barrett, 2007). Personal relevance is thus argued to be dependent on affective elements without which uncertainty about a subjective experience prevails. Further, core affect is central for communication since words also contain affective meaning, which is automatically transmitted when communicating with another person (Duncan & Feldman Barrett, 2007). The same is of course also true for the understanding and decoding of language. Overall, core affect is an important component for cognitive processing, and communication in particular, as it guides an individual’s attention, shapes experiences, provides meaning, and helps to organize and retrieve information from memory (Duncan & Feldman Barrett, 2007). Unlike appraisal theories, the concept of core affect assumes that the appraisal and perception of a stimulus cannot be strictly discriminated from the affective meaning attributed to this stimulus. Hence, it is assumed that cognition and emotions are inextricably linked.

Due to this interrelation, core affect may result in behavioral reactions that are affective in nature (Duncan & Feldman Barrett, 2007; Yik et al., 2011), that is emotional episodes (Russell, 2003). Thus, whenever core affect becomes directed at a certain stimulus it is part of an emotional episode. This stimulus-directedness, hence, differentiates simple core affect from emotional episodes, or what we would call an emotion in everyday language (Yik et al., 2011). Also note that core affect is always present and continuously changing as an individual's "internal milieu" (Duncan & Feldman Barrett, 2007: 1186) of affect. An emotional episode (i.e., the expression of an emotion) thus results from a change in this "internal milieu" in relation to an external stimulus at which it is consciously directed (Russell & Barrett, 1999). Since core affect is an element of an emotional episode (i.e., when consciously directed at a stimulus) the valence and activation dimensions of core affect can be used to describe the expressed emotion (Russell, 2003; Russell & Barrett, 1999). Put differently, emotional episodes are found to be related to certain areas within the affective circumplex space (Russell & Barrett, 1999). Distinct emotions are, however, not mutually exclusively related to certain regions in the affective space, but need to be characterized as structurally fuzzy within the two-dimensional space of valence and arousal (Russell & Barrett, 1999; Russell & Fehr, 1994). Anger and its subcategories (e.g., fury or annoyance) have, for example, been shown to vary in degree of valence and arousal, as well as to overlap with other distinct emotions in the affective space (Russell & Fehr, 1994).

A.2.3. The Bottom Line

In sum, the affective circumplex space and its underlying conceptualization of core affect is a valuable framework to identify distinct emotional episodes, that is expressed emotions, and to define these based on their degree of valence and activation. As compared to the discrete perspective of emotions, it is advantageous not to characterize emotions as fixed entities that can be ordered into detailed taxonomies, since emotions that are classified into specific taxonomies may not be fully defined by these and may not be mutually independent from other taxonomies (Frijda, 2009). Also, a categorical characterization of emotions regards emotions as subjective feeling states, which set a pre-defined chain of reactions in motion (Broekens et al., 2010). The dimensional perspective of emotions, to which the affective circumplex belongs, is based on the analysis of displayed emotions, mostly facially expressed emotions (Cowie & Cornelius, 2003; Smith & Ellsworth, 1985). Also, when disregarding these theoretical and methodological differences, a dimensional perspective is to be preferred as it is more parsimonious and better able to grasp the central, basic elements of emotions and affect (Mauss & Robinson, 2009), without trying to enforce any structural contingencies or distinctions. Note that subsequently the terms affect and emotion will be used in line with the basic definitions provided at the beginning of this chapter, in further consideration of the underlying concepts of emotional episodes and core affect.

A.3. Emotions in Online Negotiations

Recent technological developments and improvements of communication and negotiation media, led to an increase in the use of Computer-Mediated Communication (CMC) and Electronic Negotiation Systems (eNS) (Hine, Murphy, Weber, & Kersten, 2009; Johnson, Cooper, & Chin, 2009; Van Kleef et al., 2004a). Although empirical research has started to address the effects of affect in online contexts (e.g. Brett, Olekalns, Friedman, Goates, Anderson, & Lisco, 2007; Derks, Bos, & Grumbkow, 2008a; Griessmair & Koeszegi, 2009; Hancock, Gee, Ciaccio, & Lin, 2008; Koeszegi, Srnka, & Pesendorfer, 2006; Van Kleef et al., 2004a), more work is needed in order to develop a more comprehensive understanding of how emotions and affective expressions work in virtual environments (Martinovski, 2010; Moore, Kurtzberg, Thompson, & Morris, 1999) and to what extent their effects differ from what was found and concluded for traditional Face-to-Face (FtF) contexts (e.g., Barry & Oliver, 1996; Hancock, 2004; Izard, 1993; Kelly & Barsade, 2001; Parkinson, 1996). While traditional or "classic" (FtF) negotiation research is beginning to build a thorough understanding of the role affect plays in social interactions (Forgas & George, 2001; Glazer, 2002; Izard, 1993; Kelly & Barsade, 2001; Parkinson, 1996) and negotiations (Allred et al., 1997; Barry, Fulmer, & Goates, 2006; Barry et al., 2004; Barry & Oliver, 1996; Hegtvedt & Killian, 1999), recent research in the field of CMC indicates that the role of affect may be more complex in such environments than primarily assumed (Brett et al., 2007; Derks et al., 2008a; Derks, Fischer, & Bos, 2008b; Gill, French, Gergle, & Oberlander, 2008; Griessmair & Koeszegi, 2009; Murphy, Lupton, Hine, & Zelenski, 2007).

Early work addressing CMC mainly focused on the comparison with FtF communication (Kiesler, Siegel, & McGuire, 1984; Walther, 1994, 1995) and concentrated on the discovery of cues and elements that are lost when communicating via information technology. Accordingly, it was initially proposed that online communication would be inferior to its offline counterpart, since certain verbal and non-verbal communication cues were identified as being central to socio-emotional communication and behavior (Kraut, 1978; Liu, Ginther, & Zelhart, 2001). In brief, non-verbal cues comprise factors of visibility (e.g., facial expressions), paralinguistic features (e.g., speech or vocal characteristics), psychological features (e.g., states of mind), and sociological features (e.g., inter-personal sympathy or liking), whereas verbal cues denote linguistic variations, alternation in wording, or lexical diversity (Liu et al., 2001). Moreover, the intensity and closeness of inter-personal social relationships was associated with the possibility of using verbal as well as non-verbal communication channels for the expression of affect (Derks et al., 2008b; Murphy et al., 2007; Walther, 1994, 1995).

Researchers therefore regarded CMC as taking place in a "social vacuum" (Boudourides, 1995: 4), being more task-oriented than FtF communication (Rice & Love, 1987; Wilkenfeld, Kraus, Holley, & Harris, 1995), and being more individualistic and depersonalized (Kiesler et al., 1984; Sproull & Kiesler, 1986). The respective lack of para- and non-verbal cues (Boudourides, 1995; Derks et al., 2008b), also denoted as "social context cues" (Walther, 1994: 475), nonetheless, is the main differentiating feature between these different contexts of interaction (Walther, 1994, 1995), and was furthermore also believed to be the source for the potential absence or presence of affective expressions.

A.3.1. The Cues Filtered-out Perspective

The assumption that media characteristics impact relational behavior is generally termed as "cues filtered-out" perspective (Culnan & Markus, 1987) and assumes that specific communicative cues serve specific functions and that the efficiency of communicating certain information might differ from one medium to another (Walther & Parks, 2002). The capacity or communication mode of a certain medium, with respect to the number of different cues that can be used for communication, is generally denoted by the bandwidth of the medium (Rice, 1987). In high-bandwidth media, such as FtF communication, facial expressions or gestures can serve as communication cues, whereas low bandwidth-media, such as e-mail, do not provide the possibility to transmit these cues. Hence, it is argued that the limited bandwidth of some computer-mediated environments (Walther, 1994), such as e-mail messaging, results in less socio-emotional, more anonymous and less personal, more hostile and less friendly (Boudourides, 1995; Kiesler et al., 1984; Walther, 1994, 1995), or more task-oriented communication (Rice & Love, 1987). Thus, a limitation of bandwidth is associated with increased depersonalization due to an increase in psychological and social distance (Moore et al., 1999; Morris, Nadler, Kurtzberg, & Thompson, 2002; Sproull & Kiesler, 1986). Also, it is argued that certain cues, which are only available in higher-bandwidth environments, are necessary to infer meaning from a message (DePaulo & Friedman, 1998). This "cues filtered-out" perspective of CMC is further based on theoretic assumptions of social presence theory (Short, Williams, & Christie, 1976), the lack of social context cues hypothesis (Sproull & Kiesler, 1986), and media richness theory (Daft & Lengel, 1986).

Social presence theory argues that, depending on the communication environment, the presence of a communication partner can be perceived to different extents (Short et al., 1976). Since communication media vary in their capacity to transmit specific cues, they naturally also vary in the degree to which social presence can be made salient to a counterpart. Hence, the possibility to communicate via different or more "visible" cues directly impacts the communication process (Gunawardena, 1995). According to this view, the social presence of communication partners in, for example, e-mail communication is lower than in FtF communication, as the counterpart is directly visible in the latter context, whereas his presence can only be inferred when communicating via e-mail messages. In low-bandwidth environments negotiation partners are thus believed to pay less attention to the social presence of others, which should result in less personal communication. The direct relation between the availability of certain communication cues and the perceived social presence of a negotiation partner therefore influences socio-emotional communication and ultimately inter-personal intimacy (Lupton, Hine, & Murphy, 2006; Walther, 1994, 1995).

The lack of social context cues hypothesis, or social context cues theory, (Sproull & Kiesler, 1986) explains that media contexts with limited communication cues reduce the amount of information available to deduct meaning about the social context within which communication takes place. This information, for example, comprises personal variables of difference such as gender and age, information referring to status and power, or information derived from individual behavior. The restricted amount of social context information, together with different contextual norms of communication, results in barriers for information exchange and communication, which may dilute the inter-personal focus and encourage more individualistic, depersonalized, or even hostile behavior.

Media richness theory, also referred to as information richness theory, posits that different media contexts allow for the transmission of different communication cues (Daft & Lengel, 1984, 1986). Rich communication environments like FtF interactions enable a sender to transmit more and different cues than less rich communication environments, like for example text-based messaging systems, such as e-mail or chat. Accordingly, it is argued that less rich communication media are less suitable for transmitting and processing complex messages, especially when framed or interpreted subjectively (Daft & Lengel, 1986). This shortcoming is, for example, attributed to the fact that less rich media may not provide immediate feedback, such as facial expressions, which may serve as additional information required for interpreting a message as intended by its sender. Because media richness theory further motivated the formulation of other theories in this area of research (Barry & Fulmer, 2004b), Lupton, Hine, and Murphy (2006) jointly refer to these theories, dealing with contextual bandwidth limitations, as “media selection theories” (p. 80). Trevino, Lengel, and Daft (1987), for example, expand on Goffman’s theory of symbolic interactionism (Goffman, 1967) by introducing the possibility of communicating via symbols. Cuelessness theory (Rutter, 1987) additionally posits that contextual bandwidth, in terms of available communication cues, impacts the psychological distance between interaction partners. The theory of electronic propinquity (Korzenny, 1978) provides another perspective by postulating that psychological distance is related to the possibility of choosing different media contexts and not to contextual bandwidth per se. Finally, it has been noted that high-bandwidth media are not necessarily more advantageous than low-bandwidth media, as interaction complexity rises with the number of potential cues available for communication (Otondo, Van Scotter, Allen, & Palvia, 2008; Walther, 1995).

A.3.2. The Cues Filtered-in Perspective

The “cues filtered-in” perspective (Walther & Parks, 2002) challenges the position that socio-emotional communication is bound to specific communicative cues, which differ in availability by context or media. It proposes that CMC contexts of different bandwidth allow for the transmission of socio-emotional and relational information, because the communication of this information does not only depend on media characteristics (Walther, 1995) but further on the underlying task, communication complexity, experience, contextual familiarity, or environmental uncertainty (Lee, 1994; Murphy et al., 2007; Walther, 1994; Zack & McKenney, 1995).

One theory reflected in this perspective is the model of Social Identity/De-individuation (SIDE) (Lea & Spears, 1992), which posits that people interacting within the same computer-mediated environment develop a shared social reality based on shared contextual and normative perceptions. By identifying oneself as a member of a specific group within a specific environment, individuals adapt to group norms, interpret individual actions as socially reinforcing, and correspondingly promote relational interdependence. De-individuation in the form of anonymity, however, may impact inter-personal differences negatively.

Another theory within this perspective is the Social Information Processing (SIP) model (Walther, 1994, 1995), which holds that the processing of social information and its influence on the interaction process in CMC works similar as compared to FtF communication. Though the difference in richness or bandwidth between media contexts is acknowledged, SIP theory states that the development of social relationships is not dependent on the potential availability of diverse contextual cues. Inter-individual relationships are thus expected to be driven by socio-emotional exchanges regardless of the media environment. Although the proposed limitations of low-bandwidth contexts are not considered to hinder social communication, interactions taking place in less rich environments need more time to develop the same relational quality as interactions supported by higher-bandwidth media (Liu et al., 2001). This constraint is related to the fact that a limitation of communication cues may be compensated by exchanging more information within the available channels, which may in turn be more time consuming. Hence, communication does not differ across media contexts on the “amount of social information” (Walther, 1996: 10) but rather on the “rate of social information” (Walther, 1996: 10) that is or can be exchanged. Admittedly, the effect of time is considered to be partially offset with increasing experience or knowledge of the interacting parties. Empirical studies, however, also showed that CMC does not differ from FtF communication on certain relational variables even in early interaction stages (Walther, 1994; Walther & Burgoon, 1992).

In sum, the traditional view that socio-emotional communication is dependent on the common physical presence of the interacting parties, and that CMC is strictly task-oriented (Lim & Benbasat, 1992-93), has been called into question. Accordingly, different media environments cannot only be characterized by physical (Derks et al., 2008b) or technical (Barry & Fulmer, 2004b) characteristics, but also by social factors (Derks et al., 2008b) that influence media use and inter-personal behavior (Barry & Fulmer, 2004b). In fact, relational and socio-emotional behavior is “happening” or proceeding within contextual and technical boundaries (Walther, Loh, & Granka, 2005), indicating that message style or emotional expressions are impacted by and adapted to media structure and social norms (Barry & Fulmer, 2004b; Derks et al., 2008b). Some researchers also argue that, compared to FtF interactions, CMC might even be more strongly driven by socio-emotional norms or facets of relational or communicative intensity (Walther, 1996; Walther & Parks, 2002). These findings, in combination with the provided structure of virtual environments, led researchers to conclude that CMC might also outperform FtF communication in certain circumstances (Joinson, 2001).

A.3.3. CMC Features

Since the here presented arguments rest upon the fact that CMC differs from FtF communication with respect to contextual features, the following chapter will briefly outline the major properties of technically mediated communication environments. As already indicated, one default characteristic of computer-mediated environments is the degree of bandwidth, that is the available channels or communicative cues for the transmission of information. Whereas FtF environments are characterized as very rich or high in bandwidth, text-based environments are, to the contrary, characterized as low in bandwidth. Other communication environments fall in between those extremes, as for example telephone calls or video chats. With respect to the issue of bandwidth, it was for example argued that the building of trust (Valley, Moag, & Bazerman, 1998) or rapport (Croson, 1999) in low-bandwidth media is difficult (Kersten, 2004) or restricted (Pesendorfer & Koeszegi, 2006) and may give rise to problems of communication and misunderstandings (Friedman & Currall, 2003). Also, the reduction of cues in CMC may result in longer and more indirect communication paths (Lim & Benbasat, 1992-93). A limitation of communication channels may therefore limit the “social bandwidth” (Barry & Fulmer, 2004b: 275) of the interaction context, and reduce the possibility to transfer socio-emotional information in a direct way (Walther, 1995), as it could for example be done by using body language in FtF communication.

Electronic communication further introduces the possibility of interacting anonymously as it allows for personal de-individuation (Kiesler et al., 1984). Individuals may, for example, select a preferred level of self-disclosure (Joinson, 2001) they are comfortable with (Kato & Akahori, 2005), by deciding what and how much information they are willing to reveal to others (Boudourides, 1995). Accordingly, CMC may be more impersonal but also more free and uninhibited, which might in turn also have negative consequences, such as a reluctance to change or more extreme behaviors (Kato & Akahori, 2005). Typically a person might decide not to communicate information about age, gender, or nationality to circumvent biased judgments on the side of the opponent. Anonymity is, however, also reflected in the intensity of relational and social participation (Boudourides, 1995; Kato & Akahori, 2005), since a reduced contribution in an interaction means that less information will be transferred and that relational closeness will be more difficult to achieve (Morris et al., 2002). Such a potentially reduced motivation to share information is also related with an individual’s concern for the reciprocation of information sharing by his or her counterpart (Whatley, Webster, Smith, & Rhodes, 1999). Accordingly, a negotiator will consider giving up some of his or her anonymity, and hence share more information, if the social costs are lower than the expected rewards for doing so (Johnson & Cooper, 2009).

Another contextual feature that provides structure to the communication process is interactivity (Barry & Fulmer, 2004b). It refers to the amount and speed of message interchange and hence denotes the rate of information exchange (Walther, 1996). Interactivity can further be related to spontaneity, which captures the speed of individual responses and counter-responses (Derks et al., 2008b). These features are partly predetermined by the interaction medium which may, for example, constrain communication to either synchronous or asynchronous form (Burgoon, Chen, & Twitchell, 2009; Pesendorfer & Koeszegi, 2005). Moreover, individuals may influence these characteristics directly via their response times.

Anonymity, the motivation and possibility to share certain information, and interactivity all contribute to the development of a shared understanding between the negotiators. Using such contextual and social cues to establish a shared understanding, referred to as "grounding" (Clark & Brennan, 1991), further impacts a negotiator's perception of the social presence of his or her opponent (Johnson & Cooper, 2009), or the rapport a negotiator feels toward his or her opponent (Moore et al., 1999). Consequently, the perceived social distance fuels the negotiators' expectations about the negotiation process and influences their social behaviors. In this respect, an increase of social distance was, for example, found to be related to a decline of trusting, truth-telling, as well as of emotional expressions (Valley et al., 1998). In addition, it was also shown that very similar communication forms such as e-mail and pen and paper communication also differ with respect to the interactants' social behaviors (Naquin, Kurtzberg, & Belkin, 2010). In particular, it was found that people tend to behave more immoral when communicating via e-mail, due to a different perception of the social distance to their communication partner. This effect is explained by moral disengagement theory (Bandura, 2002), and attributed to psychological factors that determine which sort of behavior is appropriate in different communication environments. Accordingly, it is suggested that communication media differ with respect to perceptions and expectations of social behavior, which in turn highlights the importance to further investigate these effects in more novel communication environments.

Other evidence shows that people communicating via electronic means were more satisfied with the process of interaction as well as the outcome (Delaney, Foroughi, & Perkins, 1997), but also that CMC may reduce the likelihood of achieving an agreement in negotiations (Johnson & Cooper, 2009). The latter point is partly attributed to the same effects that contribute to the increase of social distance. Due to these effects negotiators may, for example, misinterpret positive emotions as a way to manipulate an opponent, which may finally result in less cooperative behaviors (Johnson & Cooper, 2009; Thompson & Nadler, 2002). Also, the spreading of negative emotions seems to be partly driven by the same effects in CMC. One of the prime examples for the impact of, for example, anger in virtual environments is flaming, that is the use of more destructive and more extreme behaviors and emotions in text-based online communication (Sproull & Kiesler, 1986, 1991). Flaming results from frustration with the medium of interaction, uncertainty regarding the interaction process, and anger related to the interaction partner (Broekens et al., 2010). Put differently, it is attributed to the reduced availability of social context cues in CMC (Sproull & Kiesler, 1986). Thereby flaming and the resulting increase of more extreme and more negative emotions may impact the negotiation process as well the negotiation outcome negatively (Friedman et al., 2004; Johnson et al., 2009). In particular, flaming deteriorates the process of social interaction by fostering anti-normative and hostile behaviors (Johnson et al., 2009). Consequently and paradoxically, it is found that text-based communication, which was for long considered to be more rational and less emotional, is largely influenced by socio-emotional factors, and may even be more socially and emotionally oriented than FtF communication, and accordingly should be regarded as "deeply social" (Walther, 2012: 398).

In sum, communicating via technologically mediated environments may introduce certain difficulties negotiators have to face (Johnson et al., 2009; Valley et al., 1998), since these environments present the communicators with an altered context of interaction. Although CMC may ease some aspects of communication in comparison with traditional FtF communication it, however, also introduces additional constraints, such as the artificially imposed structure (Rice & Love, 1987) (e.g., when messages may only be sent in alternation). Also, CMC may slow down the interaction process, inhibit expressive elements, or restrict inter-personal synchronization (Moore et al., 1999). But although environments of interaction may differ, it can be shown that socio-emotional communication has qualitatively similar effects in different contexts of interaction (Derks et al., 2008b; DeSanctis & Poole, 1994; Joinson, 2001; Kato & Akahori, 2005; Walther, 1995, 2012). However, the question remains how different contextual setups may result in the development of qualitatively similar socio-emotional and relational inter-dependencies. To answer this question we need to be aware that the transmission of socio-emotional information in CMC does not proceed as "obvious" as in FtF communication (Liu et al., 2001). Text-based massages, for example, provide their receiver with explicit factual content, but moreover also with explicit or implicit socio-emotional cues encoded via linguistic attributes (Barry & Fulmer, 2004b; Brett et al., 2007; Rice, 1987). The full communicative potential of text-based CMC is therefore also attributed to an individual's ability to "read between virtual lines" as well as to the ability to adapt to the medium or context and thus use it in an adequate way. Put differently, the influence of virtual communication environments on the socio-emotional interaction process is mediated by whether and to what extent individuals manage to adapt to the constraints imposed by a medium (Johnson et al., 2009; Sproull & Kiesler, 1986). This issue of media adaptation is discussed in more detail in the next chapter.

A.3.4. Media Adaptation

In general, media adaptation refers to the ability and possibility of individuals to adapt to a communication medium (Rice & Love, 1987; Walther, 1996). Consequently, it is argued that negotiators are able to adapt to CMC environments (DeSanctis & Poole, 1994; Jaffe, Lee, Huang, & Oshagan, 1999; Johnson & Cooper, 2009) and communicate via these in a manner similar to FtF communication, also with respect to socio-emotional factors of communication. Primarily, adaptation is driven by the interaction process enacted by the communication partners, who engage in a process of social co-construction, in consideration of the appropriateness of adhering to contextual social norms (Barry & Fulmer, 2004b) as well as the appropriate use of contextual cues (O'Sullivan, 2000). This effect is, for example, outlined by structuration theory (Orlikowski, 1992), which posits that actions that are being taken determine the structure of the interaction process. Social interactions conducted via CMC are thus driven by their imposed as well as enacted structure and the meaning assigned to it by the interactants. Hence, although the medium may impose certain constraints to the interaction process it is the way people make use of their pre-constructed virtual environment that primarily shapes the social interaction (Boudourides, 2001).

A.3.4.a. Social Norms

That it is possible to adapt one's communication behavior to artificially restricted communication environments, and thus overcome the imposed limitations in particular with respect to socio-emotional communication, is indicated by findings showing that individuals tend to use more socially and emotionally extreme behaviors in computer-mediated contexts as compared to FtF contexts (Cheshin, Rafaeli, & Bos, 2011; Kiesler & Sproull, 1992). Accordingly, these findings show that lower-bandwidth communication media, which are mostly devoid of "traditional" non- and para-verbal cues that enable the communication of socio-emotional information in FtF communication, are still capable to enable users to communicate on a socio-emotional level. However, although individuals manage to adapt their social behavior to the restricted and altered contexts of virtual environments on a qualitative level (Kato & Akahori, 2005; Liu et al., 2001), it is found that social behavior in lower-bandwidth environments is also driven by more ambiguous social norms (Friedman et al., 2004; Kiesler & Sproull, 1992; Thompson & Nadler, 2002). Put differently, although individuals manage to adapt to new communication environments and to communicate using qualitatively similar information as compared to FtF environments, their perception and use of this information seems to divert with respect to the communication environment, at least in terms of intensity and explicitness. Accordingly, cue-impoverished media may provoke individuals to behave in ways that would be deemed socially inappropriate in higher-bandwidth environments (Thompson & Nadler, 2002), an effect that can be attributed to the perceived increase in social distance between the interactants (Friedman et al., 2004). Due to this reason people, hence, are more prone to express more extreme emotions (Kiesler & Sproull, 1992), like, for example, anger (Friedman et al., 2004), or adopt more high-risk and aggressive negotiation styles (Sokolova & Szpakowicz, 2006, 2007). Such an increase of counter-normative and more explicit (emotional) behaviors in CMC, may further increase the likelihood of relational problems due to the induction and spread of more unpleasant emotions (Derks et al., 2008b; Kato & Akahori, 2005), which may in turn increase individual levels of concern and mental involvement. Consequently, the impact of affective behaviors on social and relational factors can be considered as profound (Van Kleef et al., 2004a) and may even be more severe in technically mediated and cue-impoverished environments (Pesendorfer & Koeszegi, 2007).

A.3.4.b. Chanel Expansion Theory

The process of media adaptation is further explained by channel expansion theory (Carlson & Zmud, 1999) positing that social experiences contribute to the individually perceived richness or bandwidth of a medium, which further impacts communication effectiveness. In particular, it is argued that perceptions of media richness depend on an individual's knowledge and experiences regarding the communication channel, the topic and context of interaction, as well as the interaction partner. Influenced by these factors, people may be more or less effective in encoding and decoding messages, and therefore more or less able to adapt to and expand the potentially limited channels and cues that are available for communication. Consequently, the possibility to engage in socio-emotional communication is not primarily determined by the availability of specific communication channels or cues, but rather by the individuals' ability to adapt to environmental conditions. Hence a person can develop a better understanding of his or her surrounding and may not only use the provided contextual features in more appropriate ways, but also utilize them more purposefully to enrich the feasible set of communication channels or cues, which will in turn influence the social interaction process (Fulk, 1993). Accordingly, channel expansion theory additionally proposes that the construction of the social environment is a dynamic process, as people become more experienced with an environment by interacting therein. Such an increase in experience improves a person's knowledge about the interaction context, and thus his or her ability to adapt to the environment, which in turn impacts his or her ability to communicate on a socio-emotional level in a more appropriate way (Barry & Fulmer, 2004b; Carlson & Zmud, 1999).

A.3.4.c. Impacts of and on Adaptation

Cues that can be used to expand communication channels with respect to socio-emotional information include, for example, language characteristics such as lexical diversity, highlighting and color coding of text, symbols, the use of specific phrases and expressions, or the inclusion of images (Barry & Fulmer, 2004b; Liu et al., 2001; Walther, 2012). Additional possibilities for adaptation may further be based on more explicit features provided by the communication medium, like interactivity (Walther, 1996) or messaging frequency (Liu et al., 2001). Such specific media attributes allow a person to adapt to a medium by, for example, manipulating impressions of relational intimacy (Walther, 1996). Due to these possibilities to adapt one's communication needs, even in restricted communication environments, offline and online communication are considered to be qualitatively similar environments of interaction. This similarity, however, refers to the mere possibility of transmitting the same type of information, that is, factual as well as social and emotional content. Having similar or the same potential possibilities of communication does admittedly not presume identical usage of these possibilities or induce congruent behavior of communicators in FtF and computer-mediated interactions. Media adaptation, thus, does not only refer to the possibility and ability of enriching cue impoverished media channels, but further also to the willingness of people to do so. Consequently, CMC is also shaped by an individual's willingness to expand and enrich the limited bandwidth by using, or alternatively abstain from using, particular communication channels or communication cues (Liu et al., 2001). In this respect, Barry and Fulmer (2004b) for example talk about the willful "underutilization" (p. 278) of the inherent abilities or bandwidth of a medium. This means that a person may, for example, regulate social interactivity by reducing the speed of communication or the number of transmitted messages. When using e-mail as communication medium, short messages or long response times may be specific examples for the underutilization of available channel cues.

To the contrary, Friedman and Currall (2003) and Friedman and Currall (2002) explicate that people often voice their concerns more perceivable by using more extreme or aggressive message content in lower bandwidth contexts, because in these settings people often have the impression of not being heard. Hence, it is argued that an escalation of conflict may be more likely in CMC. In this respect, individuals may also "overattribute" (Walther, 1996: 18) the information they are confronted with in low-bandwidth contexts. By doing so, people over-rely on the limited cues that are available for communication and may accordingly falsely over-interpret information transported via these cues. Typing errors or special characters in e-mail messages may, for example, be interpreted in a manner not intended by the message sender. According to Walther (1996) such forms of idealization or stereotypical interpretation of message content result in a form of "hyperpersonal" (p. 5) communication in which personality attributes of an interaction partner are perceived and rated as more intense than in FtF interactions (Hancock & Dunham, 2001).

Therefore the interaction process via low-bandwidth media has been ascribed a strong influence on relationship formation and quality, and especially so if individuals are unfamiliar with each other (Barry & Fulmer, 2004b), or the environment of interaction (Rice & Love, 1987). Overattribution may, for example, result in positive relational ties if one person manages to promote a favorable self-image or to highlight inter-personal similarities (Liden & Mitchell, 1988), but may have negative relational consequences if one person appears as untrustworthy. Although these effects might not be surprising and also occur in FtF interactions, it is argued that processes of overattribution found in CMC, trigger these effects more easily and result in more extreme behavioral reactions (Barry & Fulmer, 2004b). In addition, forms of hyperpersonal communication may also be used tactically in order to promote and establish relational rapport with a counterpart.

Whether or not interpersonal communication in computer-mediated environments impacts relational ties naturally also depends on the feedback from the communication partner. Depending on the reactions of a counterpart one may choose to continue or change a specific course of action (Barry & Fulmer, 2004b). Importantly, this decision further impacts the course of interaction in combination with processes of overattribution. The continuation of a course of action may be perceived as persistence and reluctance to change, whereas a switching of actions may be interpreted as weak and subordinate behavior. Hence, both of the two available options to respond to feedback from the other side may be perceived and interpreted as more extreme than they were initially intended to be perceived. Thus, the difficulty to convey socio-emotional information in cue-impoverished contexts is also related to the complicacy of judging and assessing information received by an interaction partner (Barry & Fulmer, 2004b; Rice & Love, 1987). Barry (2001) further attributes this effect of overattribution to the violation of expectations held by the information recipient, who may estimate observed actions or received information differently than the source or sender of these. The limited numbers of cues that are available in CMC are one reason for this perceptual asymmetry, as certain information, which may be necessary for an adequate contextual interpretation, may be filtered out and would need to be conveyed additionally or more explicitly. This perception of missing information, in combination with effects of hyperpersonal communication, is further identified as one reason for the heightened possibility that flaming may occur in CMC (Rice & Love, 1987).

In addition, media adaptation to expand or underutilize communication bandwidth, was also found to be a function of a person's individual preferences and skills (Westmyer, DiCioccio, & Rubin, 1998) as well as the attention being devoted to media usage (Timmerman, 2002). Accordingly, the argument that FtF communication and CMC are qualitatively very similar (Rice & Love, 1987; Walther, 1996), despite their contextual differences, can be partly attributed to these factors, especially because individuals today are more exposed than ever to virtual and computer-mediated communication. The appropriate use of and adaptation to a restricted set of communication cues (O'Sullivan, 2000) therefore also is a result of a socialization process within a new and nowadays socially accepted mode of interaction (Jaffe et al., 1999). Indeed, it was, for example, shown that expressions of irony, which are dependent on certain non-verbal and socio-emotional cues, can be successfully used in CMC, if individuals are aware of and familiar with the contextual constraints imposed by a medium of interaction (Hancock, 2004).

A.3.4.d. The Bottom Line

In sum, research shows that individuals manage to communicate on a socio-emotional level in CMC by adapting their communication behavior to environmental conditions. This process of adaptation is further influenced by a person's ability to adapt to a medium, the appropriate use and understanding of socio-emotional cues, individual expectations, interpersonal understanding, and the resulting relationship quality. Moreover, as explicated by Barry and Fulmer (2004b) these factors can be influenced individually to a certain extent by actively managing the information sharing process and related behavioral reactions. By adapting message quality or richness negotiators may, for example, make the presented information more relevant or understandable for their opponent (Petty, Cacioppo, & Goldman, 1981), which may further induce more thoughtful processing of the obtained information. Thus, although more structured and restricted communication media reduce the number of explicit cues an individual needs to pay attention to this does, however, not simply implicate that such media are always less cognitively demanding (Kersten, 2004). The reduction of cognitive effort due to limitations of communication bandwidth is partially offset by the increase of cognitive effort when a person tries and manages to convey more information with the available set of limited communication cues (Pesendorfer & Koeszegi, 2007; Van Kleef et al., 2004a). In this respect, cognitive processing efforts are then also more demanding for the receiver of a message, since he or she needs to decode more information from less communication cues.

The relevance of these effects for the communication of affect in CMC can be summarized by two major points, derived from literature on emotion regulation (Ochsner & Gross, 2005; Richards & Gross, 2000; Wadlinger & Isaacowitz, 2011). First, an increase in cognitive effort may force a negotiator to focus his or her attention to certain pieces of information. Since negotiations are naturally characterized by limited and asymmetrical information, negotiators may therefore pay more attention to the emotions displayed by their opponent, because these provide guidance with respect to the importance of the issues under negotiation for the opponent. Also an opponent's expressed emotions may help to judge the context of social interaction more appropriately and may guide a negotiator with respect to the importance of adhering to certain social norms in the communication process. Second, an increase in cognitive effort may lead to more uninhibited communication and use of emotions. If negotiators need to increase their cognitive effort to overcome low-bandwidth limitations then they have less cognitive resources available for the willful adjustment of their emotions. Hence, expressions of affect can be regulated to a lesser extent, which should render the expressed emotions less controllable or more "pure". Altogether, although communication environments differ with respect to contextual constraints, individuals nevertheless manage to adapt to these and are able to use computer-mediated forms of communication in a manner similar to traditional FtF communication, also with respect to the communication of affect (Rintel & Pittam, 1997).

A.3.5. Affective Behavior in CMC

Further insight into the role affect plays in written communication is provided by Brett, Olekalns, Friedman, Goates, Anderson, and Lisco (2007), in particular with respect to the impact of emotions on the social interaction process. Their research is rooted in the concept of face theory (Goffman, 1967; Ting-Toomey & Kurogi, 1998), which explicates that language and words impact dispute resolution via socio-relational factors. In particular, it is argued that the way people communicate with each other shapes their perceptions about each other and thereby induces certain social and relational behaviors, broadly denoted as giving or attacking face. These two opposing behavioral acts contribute to the formation, preservation, or deterioration of the relationship between the interacting parties and may result in cooperative or competitive moves. Since language and communication patterns provide the framework and means for inter-individual exchanges, giving or attacking face are implications of these patterns and refer to the meanings conveyed via a transmitted message, which are also based on and include affective content (Oetzel, Meares, Myers, & Lara, 2003; Taylor, 2002a; Wilson, Aleman, & Leatham, 1998). Accordingly, expressions of negative affect via different text-based cues would imply and induce attacks on face, whereas expressions of positive affect would result in the opposite. Consequently, communicated emotions, for example, provide information about relationship status and trust, social orientation, or dispute resolution behavior (Allred et al., 1997; Anderson & Thompson, 2004; Carnevale & Isen, 1986; Knutson, 1996; Van Kleef et al., 2004a), and may thereby impact norms of socio-relational behavior, such as acts of reciprocity (Brett et al., 2007). In this respect, negative emotions and the attacking of face may be reciprocated and answered with similar behavioral acts, just as positive emotions and the giving of face. The evidence provided by Brett, Olekalns, Friedman, Goates, Anderson, and Lisco (2007) thus also highlights that negotiators may engage in acts of reciprocity with respect to the communication of affect in CMC. This is important insofar as it was suggested that emotional contagion or reciprocity is subject to direct physical presence of the interaction partners (Barsade, 2002), which is not given when communicating via text. However, the fact that affect can be communicated in lower-bandwidth environments by utilizing specific text-based cues, as discussed in previous chapters, suggests that these cues as well as their derived meanings can and will also be reciprocated, which results in the spreading of affect. This assumption is further supported and validated by different scholars (e.g., Cheshin et al., 2011; De Dreu, Carnevale, Emans, & Van de Vliert, 1994; Friedman et al., 2004; Kelly & Barsade, 2001; Nielek, Wawer, & Wierzbicki, 2010; Thompson & Nadler, 2002; Van Kleef et al., 2004a).

Kelly and Barsade (2001) provide a theoretical justification, based on the concept of contextual adaptation, and argue that individuals seek to communicate affect also in cue impoverished environments. Since processes of emotional reciprocity and contagion are dependent on the imitation of certain affective behaviors, and hence the mimicking of specific emotion-laden communication cues, negotiators are able to respond to emotions with "counter-emotions" because they are able to exchange or "simulate" traditional non- and para-verbal expressions that are typically found in FtF interactions, in CMC environments. Similarly, Van Kleef, De Dreu, and Manstead (2004a) showed that the inter-personal spreading of affect is supported by CMC contexts, analogous to more general processes of social contagion found in computer-mediated environments (De Dreu et al., 1994). In particular, negative emotions such as anger and positive emotions such as happiness, were found to be contagious. These effects were, however, not found to be indicative of inter-personal behaviors. In addition, effects of emotional mismatching were uncovered, for example that happy messages were answered with higher demands. Hence, although emotions of the same class were transferred between negotiators, these emotions did not always translate into related behaviors, such as cooperative moves following positive emotions or competitive moves following negative emotions. Van Kleef, De Dreu, and Manstead (2004a) provide two possible explanations for this finding. First, emotions were self-reported by the participants, which could have resulted in reporting only emotions originating in perceptions about one's own behavior and not the behavior of a counterpart. Second, it was argued that the process of emotional transfer is interconnected with potential strategic choices and behaviors, and therefore mediated by such considerations. Accordingly, negotiation messages and offers that are accompanied by emotions impact an opponent's interpretation of the received input which further shape his or her corresponding reactions, including his or her expressions of subsequent emotions. Put differently, received information and perceived emotions impact one's own states of emotions, which serve as additional input that is used for successive actions and responses. In detail, these inter-personal effects of emotions have been related to informational and social functions. The former provide additional information for potential strategic choices, and the latter yield additional information about relational status as well as about a communicator's possible social intentions. Thus, it seems that the question, which behavioral reactions follow specific expressions of emotions, needs to be answered in consideration of several factors of influence. Nonetheless, the study of Van Kleef, De Dreu, and Manstead (2004a) provides important evidence that processes of emotional transfer and reciprocation are present in text-based forms of communication.

In a related paper Thompson and Nadler (2002) elaborate on the theoretical implications of inter-individual contagion and reciprocity, and provide further evidence for the inter-personal transmission of affect in text-based CMC. It is argued that negotiators are influenced by their counterparts' emotions and that these are passed on or imitated by an interaction partner. By doing so negotiators are able to establish relational bonds, which improve the social interaction as well as the related negotiation outcomes. These processes of building rapport are not strictly related to the task, but serve important relational functions and were referred to as "schmoozing" (Thompson & Nadler, 2002: 115). Reasons for the occurrence of schmoozing and patterns of emotional transfer in CMC are identified as being grounded in features of the communication medium, such as increased anonymity (McKenna & Bargh, 2000), or a reduction of socio-normative cues (Kiesler & Sproull, 1992). As a result, individuals perceive to be more disconnected from social norms and act less restrained with respect to these, due to the reduction of constraining elements imposed by the communication medium (Kiesler & Sproull, 1992; Morris & Keltner, 2000). Consequently, self-disclosure and expressions of affect are less inhibited (McKenna & Bargh, 2000) and therefore induce more pronounced behavior, which may result in the increase of emotional contagion and reciprocity on more extreme levels (Thompson & Nadler, 2002). These findings are further related to theoretical frameworks of inter-personal interactions. First, the possibility for establishing "interpersonal rapport" (Thompson & Nadler, 2002: 111) via non- and para-verbal cues is considered to be elementary for relational as well as emotional synchrony in text-based communication. Relatedly, research providing evidence for this process (Thompson & Nadler, 2002; Van Kleef et al., 2004a) also shows that people are attentive to each others' expressions and coordinate these, which may lead to the reinforcement of positive or negative emotions. Second, the interpersonal coordination of affect occurs based on explicit as well as implicit processes, but the speed by which these actually result in some form of coordination is argued to differ according to the medium of communication (Valley et al., 1998). Coordination and affective convergence may therefore be found to work slower in lower-bandwidth environments. Third, "physical proximity" (Thompson & Nadler, 2002: 112) additionally impacts the speed of information exchange, indicating that affective transfer works less efficient in cue-impoverished contexts, if proximity cannot be established. Finally, the contagious spread of behavior or affect in text-based communication is a function of the three previously mentioned resources of influence as well as the deviations from socio-normative behavior with respect to traditional FtF communication (Kiesler & Sproull, 1992).

Importantly, the reciprocation of affect, that is, the response to affective expressions in kind (Weingart, Prietula, Hyder, & Genovese, 1999), presumes effects of affective as well as behavioral contagion in text-based CMC. The primary reason for this joint dependency lies in the communication context and the respective substitution of non- and para-verbal cues in lower-bandwidth media, and the according adaptation of users to these media. As outlined in previous chapters, individuals communicating via text, are able to transport their emotions within a message that is being transmitted by making use of the communication cues that are provided by the communication environment. Therefore, behavioral expressions and the communication of affect are closely linked in a systematic fashion. With reference to attribution theory (Weiner, 1985), Cheshin, Rafaeli, and Bos (2011) support this view and posit that the identification of affect is based on specific behaviors. For example, resoluteness is suggested to imply anger, and flexibility is proposed to imply happiness. This interconnection between behavioral expressions and affect is mainly based on the assumption that people implicitly derive meaning from the communication cues that are available to them, which is especially important in text-based CMC, because of the limited availability of such cues in these communication environments. In text-based communication, people therefore need to base their behaviors as well as their affective expressions on the restricted means at their disposal, which drives interactants to use the available sources of information more profoundly.

Two important sources of information that influence behavioral orientations as well as the transfer and potential reciprocation of affect are the social value of affect and the perceived social and affective similarity to an interaction partner. The social value of affect originates in the individual processing of emotions that surface during an interaction (Salancik & Pfeffer, 1978). This means that negotiators utilize their own affect (Schwarz, 1990), as well as their counterpart's emotions (Van Kleef, 2009), to derive additional meaning from the context. The perception of social and affective similarity is based on effects of social comparison (Festinger, 1954; Huntsinger, Lun, Sinclair, & Clore, 2009), meaning that negotiators choose their behavior in consideration of what their negotiation partner does. Both of these processes mediate the transfer of affect, and as a consequence also influence the expression and reciprocation of specific emotions (Kelly & Barsade, 2001).

The fact that the "affective tone of others' text-based communication and/or behavior" (Cheshin et al., 2011: 12) are interrelated, however, also implies that emotions and behaviors may not be congruent. Indeed, a mismatch of these communicative and relational characteristics was found to induce negative affect. Thus, it is not only important to be aware that behavioral actions carry affective meaning, but also that the affective tone reflected in a message is interpreted in relation to the factual meaning that is being communicated. Consequently, the contagion or reciprocation of emotions is the result of a comprehensive and complex system of interactions, and maybe even more so in the case of text-based interactions (Byron, 2008; Hancock et al., 2008). Accordingly, Cheshin, Rafaeli, and Bos (2011) also refer to the dynamics of emotions in computer-mediated negotiations. As a representative example for the dynamic spread of emotions the authors (Cheshin et al., 2011) refer to flaming, which is a common phenomenon found in computer-mediated interactions (Johnson et al., 2009). It denotes the reciprocation of negative emotions and hostile behaviors triggered, for example, by the perception of unfair behaviors, frustration, or an expression of negative emotions. Once initiated, the interactants are caught in a negative spiral of reinforcing expressions of negative emotions, from which it might be difficult to escape. As a consequence, such behavior often leads to inferior negotiation outcomes or an early termination of the negotiation process (Brett, Shapiro, & Lytle, 1998).

Additional evidence for the comprehensive effect of affective dynamics is given by Nielek, Wawer, and Wierzbicki (2010) and their analysis of exchanged messages in online auctions. In compliance with Brett, Shapiro, and Lytle (1998), their results show the reinforcing character of negative emotions and other behavioral expressions, referred to as “spiral of hatred” (Nielek et al., 2010: 325). Also, it was found that interaction partners interpret negative expressions as more important and severe than positive ones, such that a single negatively valenced comment may already spark a spiral of hatred, whereas multiple positive expressions may not revoke such a process. Furthermore, it was shown that negative comments reduce the informativeness of subsequent messages while increasing and amplifying affective content. Relatedly, Friedman, Anderson, Brett, Olekalns, Goates, and Lisco (2004) provide direct evidence for emotional reciprocity, based on an analysis of messages retrieved from an online mediation platform. In general it was found that, similar to FtF communication, emotions are also being reciprocated via text-based messages that are transmitted online. Especially expressions of anger were shown to result in a cycle of negative emotions, such that experienced and perceived anger induced subsequent expressions of anger. Thus, the occurrence of negative spirals or cycles in negotiations (Brett et al., 1998; Nielek et al., 2010; Olekalns, Lau, & Smith, 2002) is validated and furthermore found to be related to the reciprocation of affective expressions. Negative emotions, however, are not always inducing or reinforcing such negative cycles of reciprocity. If, for example, negative emotions are being perceived as appropriate or provide information about a violation of social norms or other negotiation behaviors, extreme emotions may assist in re-establishing interpersonal balance (Olekalns et al., 2002). Furthermore, mismatching negative with positive emotions may break a negative emotional cycle and help negotiators to break out of such destructive forms of behavior (Brett et al., 1998). Friedman, Anderson, Brett, Olekalns, Goates, and Lisco (2004) also found evidence for the reciprocation of positive emotions and identified positive cycles of reciprocity. These results are important for the understanding of reciprocity in CMC, since such positive cycles of reinforcement are less commonly shown in the analysis of negotiation data (Weingart & Olekalns, 2004). Another exception providing such evidence is the work by Olekalns, Lau, and Smith (2002) who showed that negotiators engage in a positive cycle of trust, which is also fueled by the reciprocation of emotions.

A.3.6. Social and Emotional Cues in CMC

As discussed and pinpointed in previous sections, computer-mediated interactions are not more rational or devoid of socio-emotional elements of communication than FtF interactions, but can and should be characterized as being highly social (Joinson, 2001; Murphy et al., 2007). This argument is backed by the cues filtered-in perspective of CMC, which highlights that virtual communication contexts provide the possibility to exchange non- and para-verbal information, similar to “richer” FtF contexts. Additionally, this position is supported by findings showing that individuals are able to adapt to new environmental conditions and enrich lower bandwidth contexts by using the available communication channels in ways appropriate for the transmission of socio-emotional cues. Since such cues have important relational functions they are crucial elements in negotiations, whether conducted offline or online. Also, because it is shown that people increase their communication efforts in CMC in order to communicate socio-emotional information, it has been argued that the use and communication of socio-emotional information may be even more important in CMC than in FtF interactions (Joinson, 2001; Liu et al., 2001; Murphy et al., 2007; Zack & McKenney, 1995). Although this assumption may not be universally acceptable, the fact remains that people use considerable effort to communicate non- and para-verbal information in environments that do not directly provide the possibility for doing so in a traditional manner. If, however, individuals would simply accept the limitations imposed by a medium, a significant part of traditional human communication would be rendered impossible or useless, since researchers estimate that around 60 percent of communication proceeds on non- and para-verbal levels (Hickson, Stacks, & Moore, 2004).

Since emotions and affect largely contribute to non- and para-verbal communication and are considered to have a major influence on personal interactions (Knapp & Hall, 2010), they present an important part of contribution to communication by providing context for factual information and guiding individuals in their judgment (Murphy et al., 2007). Accordingly, emotions strongly contribute to communication quality and success in any form or environment of interaction. Bower's network theory of affect (Bower, 1981) supports this position by suggesting that affect is a mean for accessing and organizing our memory. Information is considered to be related to and interpreted within an affective context, which implies that past experiences and affect are perceived and stored in memory in conjunction. Subsequent affective or environmental information is then interpreted in accordance with past memories. Thereby this process provides affective meaning to factual information and vice versa. This interconnection of factual and affective perceptions does, however, not only influence the processing of information but furthermore also efforts to communicate, as people rely on the joint combination of these factors to make sense of their environment. Schwarz and Clore's affect as information approach (Schwarz & Clore, 1983) advocates this point by highlighting that affect provides valuable information for making judgments. Accordingly, affect impacts which pieces of information we judge as relevant and important and thereby also guides communicative behaviors. Consequently, the communication and perception of affect increase the comprehensibility of transmitted information as well as the possibility to adapt to environmental conditions. In CMC we therefore encounter a form of "double-adaptation", meaning that people try to adapt to new contextual situations, by enriching the limited set of communication cues in order to be able to better adapt to the situation, and by using affect as additional level of information. Altogether, these claims lend further credibility to the assumption that affect, and emotions in particular, are not eliminated in CMC and thus also have important functions in virtual environments (Moore et al., 1999; Van Kleef et al., 2004a).

A.3.7. Communicating Affect via Text

Text-based online negotiations present a particular challenge for the communication of non- and para-verbal information, and in particular for the communication and expression of affect, because negotiators can only rely on text-based messages to extract both factual as well as affective meaning (Brett et al., 2007; Hine et al., 2009; Schroth et al., 2005; Sokolova & Lapalme, 2012). Based on the assumption that affect can be communicated via textual messages that are being transmitted online, the language being used for communication should vary significantly with respect to whether and which emotions are being communicated. Otherwise people would be using the same emotion throughout a whole negotiation, which is rather unlikely, or the transmission of emotions via textual messages would not be possible after all. Support for this assumption is provided by Sokolova, Nastase, and Szpakowicz (2008) who investigated language patterns in e-negotiations and found that language does indeed change significantly throughout the course of a negotiation. Additionally, it was shown that the language of messages collected from e-negotiations differed from those collected from FtF negotiations. A similar study by Sokolova, Shah, and Szpakowicz (2006) showed that language affected the outcome, the strategies used, as well as the behavior of interaction partners in asynchronous e-negotiations as well as in synchronous FtF negotiations.

Recent studies also showed that variations in language may be correlated with variations in affective behavior (Cheshin et al., 2011; Hancock et al., 2008; Hancock, Landrigan, & Silver, 2007; Walther et al., 2005), which strengthens the assumption that affect can be communicated by using written language. Further support for this assumption comes from literature positing that affect expressed in text-based CMC influences the meaning and overall interpretation of specific messages (Liu et al., 2001; Lupton et al., 2006). In this respect, additional research efforts highlight that text-based communication can also be a central source of affective misjudgment (Kato & Akahori, 2005) and that people have biased assumptions regarding the expression as well as the comprehension of affect conveyed in text (Byron, 2008). As stated by Byron (2008), positive emotions, for example, were found to be judged as comparably neutral, whereas negative emotions were found to be interpreted as more intense in a negative direction. Additionally, negative emotions may superimpose other textual cues and frame the negotiation process as overly negative (Walther & D'Addario, 2001).

A.3.7.a. How to Communicate Affect via Text

With reference to Putnam and Roloff (1992), Sokolova and Szpakowicz (2006) and Sokolova and Szpakowicz (2007) further specify that the communication of affect as well as factual content via written language is driven by five parameters: polarization, immediacy, intensity, lexical diversity, and powerful or powerless style. Although it is argued that people have control over the cues used to communicate in CMC (Cheshin et al., 2011), such as capital letters or special characters (Byron, 2008), the above classification already indicates that some expressions may be used less purposefully and more spontaneously or automatically. Hence, also in text-based communication, the use of certain informative cues may be harder to control than others, similar to interactions in FtF contexts (Ekman, 1988).

The most obvious and direct way for expressing affect in text-based CMC is the deliberate and indicative use of affective language, affective words, or affective terms (Brett et al., 2007; Hancock et al., 2007), such as angry, sad, happy, or pleased. Further, affect can be communicated via "informal codes", referred to as "emotext" by Jaffe, Lee, Huang, and Oshagan (1999), which includes "intentional misspelling […], lexical surrogates […], grammatical markers, strategic capitalization, and […] emoticons" (Jaffe et al., 1999: 222). An example of intentional misspelling, also referred to as "orthographic exaggeration, extension, [or] expansion" (Liu et al., 2001: 897), can be the use of the phrase "soooo good" (Jaffe et al., 1999: 222), which accentuates the expression due to the repetitive use of certain letters (Boudourides, 1995). Similarly, affective expressions may be emphasized by using alternations in word spacing (Murphy et al., 2007). In addition, misspelling and typing errors may be unintentional, which could indicate that a person was in a hurry, is incompetent or careless, or to the contrary spontaneous or lively (Liu et al., 2001). Lexical surrogates, such as "hmmmm" or "ouch" (Jaffe et al., 1999: 222), are paralinguistic marks that provide information regarding a person's hesitation, thoughtfulness, or disaffirmation (Boudourides, 1995). Grammatical markers refer to the use of punctuation (Hancock et al., 2007), including question marks or exclamation marks, as well as other special characters as, for example, "%$@*#" (Jaffe et al., 1999: 222), which allow a sender to highlight specific content and thereby to emphasize certain emotions (Boudourides, 1995; Murphy et al., 2007). Strategic capitalization of letters or entire words is associated with shouting (Jaffe et al., 1999), direction of attention, or a display of negative affect (Boudourides, 1995). Emoticons and typographic marks enrich text-based interactions with symbols serving as substitutes for facial and other non-verbal cues (Boudourides, 1995; Sia, Tan, & Wei, 2002). These provide additional affective information (Derks et al., 2008a) and may further help to increase satisfaction and reduce hostile behavior (Rivera, Cooke, & Bauhs, 1996; Thompsen & Foulger, 1996). Boudourides (1995) further notes the adaptability of text-based vocabulary by the use of acronyms, such as LOL for "laughing out loud", or WTF for "what the fuck".

Another, maybe less obvious way, for communicating affective cues in CMC is the timing of message transmissions (Hesse, Werner, & Altman, 1988), referred to as chronemics (Walther & Tidwell, 1995). Correspondingly, the speed of replying to a message as well as the time chosen to do so, are important and informative cues. According to Liu, Ginther, and Zelhart (2001) a slow reply is interpreted in terms of affection or intimacy, whereas a fast reply is interpreted in terms of dominance. In addition, whether a message was sent during the night or day conveys meaning about intimacy or dominance orientations of the sender (Liu et al., 2001). Aspects of message timing are moreover related to synchrony, that is, the ability to actively time feedback messages (Carlson, George, Burgoon, Adkins, & White, 2004), which also depends on the constraints imposed by the communication medium (Murphy et al., 2007). E-mail, for example, is a less synchronous medium than chat, since e-mail messages do not need to be sent and received directly following each other. Such an imposed latency of message transmission may, however, be controlled when communicating via e-mail, since a person then has more freedom to decide on when to reply. Conversely, communicating via chat introduces time pressure, as one is urged to reply immediately, which may render a conversation more competitive, and emotional (Pesendorfer & Koeszegi, 2006). Rehearsability is a further attribute of CMC that provides additional richness to the communication context. It is interrelated with synchrony (Murphy et al., 2007), since the feasibility of delaying a response is naturally correlated with the possibility of carefully formulating and rehearsing it (Dennis & Valacich, 1999). According to Murphy, Lupton, Hine, and Zelenski (2007) rehearsing a message enables its sender to adapt it to a potential receiver such that he or she judges and interprets it as intended.

Duration and, even more so, frequency of messaging are yet other time-related characteristics of CMC that influence the interaction process by providing supplementary information (Liu et al., 2001). In general Liu, Ginther, and Zelhart (2001) showed that both characteristics have similar effects in CMC and FtF communication and that these results are supportive of the SIP model (Walther, 1994, 1995). In particular, it was found that frequency and duration of messaging are indicators of a person's participation and impression formation in social interactions and that these two factors are positively related to judgments about a person's competence as well as confidence (Koomen & Sagel, 1977; Liu et al., 2001; Willard & Strodtbeck, 1972). Hancock, Landrigan, and Silver (2007) provide additional results indicating that the frequency of the use of certain message cues is related to expressions of affect in text-based environments. First, positive emotions were found to be negatively related to the frequency of disagreements, but interestingly not positively related to the frequency of agreements. Second, in emotionally negative interactions, people used significantly more negative affective terms than in emotionally positive interactions. Third, an increased use of punctuation, especially of exclamation points, led to more emotionally positive expressions. These effects of not strictly verbal cues are referred to as "prosody of text" (Hancock, 2004: 460) following the prosody found in FtF communication, such as the tone of voice (Hancock et al., 2007). Fourth, the total amount of words being used was found to be greater for emotionally positive interactions.

Further, Adkins and Brashers (1995) showed that using a powerful language style in CMC, which is described by the "overuse of polite forms […], hedges […], hesitations […], deictic phrases, intensifiers […], and tag questions" (Adkins & Brashers, 1995: 295), is perceived as more persuasive, attractive, and credible, than when using a powerless language style. Perceptions and judgments of such speech patterns thus affect interpersonal impression formations, which impact behavioral reactions. Also, these perceptions and subsequent reactions are more extreme when the language styles of the interacting parties are contrasting (Adkins & Brashers, 1995). Hence, the way people individually perceive elements of inter-personal communication will influence their affective behaviors. Additionally, opposing language styles of the interactants may further amplify affective judgments or make them more salient.

Supplementary to the non- and para-verbal cues of CMC discussed above, primacy and recency effects (Liu et al., 2001) were found to influence the relationship between communication partners (Rintel & Pittam, 1997). Characteristics of initializing or very early messages can have a priming effect on the following interaction process by impacting impression formations and affective judgments. Rintel and Pittam (1997) exemplify this fundamental influence of opening messages with the potential choice of user names in computer-mediated interactions. Accordingly, people may choose to use their real name or a synonym, which could for example be perceived as funny, strange, or offensive. In this respect, funny synonyms may induce more emotionally positive communication, whereas offensive synonyms may induce more emotionally negative communication. Contrarily, messages sent during the closing phase of an interaction process may be used for final persuasion or to leave a positive impression (Liu et al., 2001). Also, it was concluded that textual language style is used to establish social equality at the beginning of a communication interaction, whereas final interaction patterns were found to be characterized by more risky moves intended to close the interaction process in a favorable manner (Rintel & Pittam, 1997).

In sum, it can be concluded that, although it might seem to be more difficult or demanding to transmit affective information in CMC (Rivera et al., 1996), this mode of interaction nevertheless allows and enables individuals to transmit social and emotional cues (Boudourides, 1995; Derks et al., 2008a; Liu et al., 2001; Lupton et al., 2006; Walther, 1994, 1995). Even in rather “limited” or low-bandwidth communication contexts, like text-based computer-mediated environments, both “linguistic and paralinguistic cues can be communicated” (Murphy et al., 2007: 3). While both classes of cues enable the communication of affect, paralinguistic cues have not only been found to be available and important for the transmission of affect in FtF interactions but similarly so in lower-bandwidth contexts (Borod et al., 2000) and in CMC (Sia et al., 2002). In this respect Murphy, Lupton, Hine, and Zelenski (2007) also refer to symbol variety, which denotes the available number of cues within the available channels that can ultimately be used for the communication of paralinguistic information. In the currently discussed extreme case of text-based interactions, people would for example be limited to one channel, that is, text (Murphy et al., 2007: 3) within which the beforehand mentioned cues could be used and manipulated for the communication of affective content (Liu et al., 2001).

A.3.7.b. Paralanguage, Informativeness, and Communicative Layers

As just indicated before, cues that promote the communication of affect, are referred to as “paralanguage of written communication“ (Boudourides, 1995; Carey, 1980; Jaffe et al., 1999; Lea & Spears, 1992; Liu et al., 2001), following the definition of paralanguage in FtF interactions, as means for the transmission of para-verbal information (Lea & Spears, 1992; Liu et al., 2001). Hence, it is argued that the possibility to additionally communicate via paralanguage in CMC improves and extends communication, since it enriches the social context (Lea & Spears, 1992) by providing shared social meanings, facilitating the interpretation and understanding of exchanged messages, and helping to interpret another person's message style in order to develop an understanding about his or her personality (Liu et al., 2001). The initial definition of text-based paralanguage, however, strictly refers to linguistic patterns (Carey, 1980; Jaffe et al., 1999), and disregards other factors that also enable the expression of social and affective information, such as the frequency and duration of messaging (Liu et al., 2001).

In addition to linguistic phenomena Sokolova and Lapalme (2012) further address factual information and contextual factors as complementary resources for the transmission of non- and para-verbal cues. It is argued that these three factors together determine the quantity and density of information that can be read from a specific message. Accordingly, the authors speak of the "informativeness of a message" (Sokolova & Lapalme, 2012: 366). Individuals thus are believed to interpret written content by jointly considering more obvious facts such as explicit information or numeric offers, hidden meanings, as well as contextual information. In line with this position it was for example found that the way by which individuals communicate as well as the language patterns that are used to communicate, impact the outcome of a negotiation (Hine et al., 2009; Simons, 1993; Sokolova et al., 2008; Sokolova & Szpakowicz, 2006). Explicit or more implicit expressions of affect therefore strongly contribute to the informativeness of a message via the diverse lower-bandwidth cues that were discussed before. Consequently, affect provides important information for the decoding of messages and to better infer and understand what the sender of a message intended to communicate (Sokolova & Lapalme, 2012).

A different yet related perspective posits that a textual message is comprised of different layers, each of which permits the transmission of different information, such as factual content, self revelation, relational information, or appeal (Schulz von Thun, 1981; Watzlawick, Beavin, & Jackson, 1967). Consequently, different types of information can be conveyed jointly within one single message and need not be communicated separately. In line with this position, Griessmair and Koeszegi (2009) argue that the communication of affect similarly proceeds on an additional message layer. Thus, the beforehand discussed text-based cues that enable the expression of affect in CMC, provide the possibility to communicate via an additional emotional layer, which permits negotiators to „attach" emotions or affective meaning to transmitted factual content.

The three conceptually similar frameworks of paralanguage (Carey, 1980), informativeness (Sokolova & Lapalme, 2012), and communicative layers (Schulz von Thun, 1981; Watzlawick et al., 1967), altogether support the claim that socio-emotional information is not only exchanged in text-based negotiations, but furthermore important for the communication process and the understanding of message content and context. In addition Sokolova and Lapalme (2012) showed that informativeness is related to the successful or unsuccessful resolution of a negotiation as well as that the outcome of a negotiation depends on the informativeness of individually different negotiation stages (Simons, 1993; Sokolova et al., 2008). Positive and negative emotions were also found to be important contributors to informativeness and negotiation outcome (Hine et al., 2009). Similarly, Griessmair and

Koeszegi (2009) showed that failed and successful negotiations differ in their emotional patterns over time, which indicates that emotions communicated via the affective layer can be continuously adapted and changed. Accordingly, resolved and unresolved negotiations can be characterized by messages of different affective quality, and different patterns of affective evolvement over the negotiation process.

PART B – The Dynamics of Affective Behaviors: Toward a Multi-Level Perspective

The current Part B introduces the issue of dynamics and explicates a multi-level perspective of the dynamics of affective behaviors, based on behavioral and procedural dynamics (Chapter B.2). The Chapters B.2.1 and B.2.2 further point out that, intra-personal and inter-personal, effects of affective behaviors are important for conceptualizing and understanding behavioral dynamics. Chapter B.2.4 discusses phase model theories of negotiations and introduces a three-phase model to conceptualize and understand procedural dynamics. Chapter B.2.5 discusses that the dynamics of affective behaviors arise out of behavioral and procedural dynamics. Finally, Chapter B.3 introduces the first set of hypotheses and research questions to be addressed, with respect to the dynamics of affective behaviors in successful and failed negotiations.

B.1. The Dynamics of Affect: An Introduction

The following chapters discuss and explain the dynamics of affective behaviors to be addressed, however, before going into detail we briefly outline how the term dynamics is understood in the present work. The dynamics of affective behaviors include procedural and behavioral dynamics. Procedural dynamics refer to the negotiation process and the continuous change or evolvement of the negotiation process over time. Behavioral dynamics refer to the behaviors of the negotiators and how these are interconnected. Since behavioral dynamics (i.e., the behaviors of the negotiators in interaction) and procedural dynamics (i.e., the continuous evolvement and change over time) are naturally related, this distinction should be considered as theoretical simplification. Nevertheless, this distinction is used to justify and explain why and how the changing and evolving negotiation process and the interconnected behaviors of the negotiators are interrelated and embedded, as well as to explicate that both, procedural and behavioral, dynamics constitute the dynamics of affective behaviors in negotiations. Also note that we are in particular referring to the dynamics of affective behaviors, which refer to the affective behaviors or expressions and affective counter-behaviors or expressions of the negotiators and the evolvement and changes of these affective behaviors or expressions over the negotiation process, that is, over time. In addition, we would like to point out here that the interconnection of (affective) behaviors and subsequent (affective) behaviors is naturally also linked by explicit or implicit cognitive evaluations or assessment processes. The general interconnections with cognitive functions and processes were outlined in previous chapters, and will thus not be explicitly discussed in the current chapter.

Initially, research in the area of affective and emotional dynamics emerged from two lines of thought, regarding affect either as source and predictor of behavior (Allred et al., 1997; Barry et al., 2006; Barry & Oliver, 1996; Butt et al., 2005; Carnevale & Isen, 1986; Forgas, 1995, 1998; Friedman et al., 2004; Frijda et al., 1989; Isen et al., 1987; Keltner, Ellsworth, & Edwards, 1993; Kramer et al., 1993; Lerner & Keltner, 2000, 2001; Obeidi et al., 2005; Rhoades, Arnold, & Jay, 2001; Sutton & Rafaeli, 1988, Van Kleef et al., 2004a, 2004b), or as experienced consequence and behavioral outcome (Adler et al., 1998, Berkowitz, 1989, 1989; Hegtvedt, 1990; Kraut & Johnston, 1979; Lanzetta & Englis, 1989; Lawler & Yoon, 1993; Loewenstein, Weber, Hsee, & Welch, 2001; Naquin, 2003; O'Connor & Arnold, 2001; Olekalns et al., 2005; Oliver, 1993; Roseman, Spindel, & Jose, 1990; Scherer & Tannenbaum, 1986; Schroth et al., 2005; Weiss, Suckow, & Cropanzano, 1999; Zeelenberg, Van Dijk, Van der Pligt, Manstead, Van Empelen, & Reinderman, 1998). Hence, research on affective dynamics is grounded in a "static" understanding of affect either as factor of antecedence or as consequence which, indisputably, is a necessary precondition for a more pronounced analysis of affective and emotional dynamics. To put it simple, in order to be able to fully understand the dynamics of affect, it is necessary to have a precise understanding of the potential "static" effects that contribute to affective expressions as well as of the possible consequences these may produce.

With respect to affect as source or predictor of behavior Van Kleef, De Dreu, and Manstead (2004a) and Friedman, Anderson, Brett, Olekalns, Goates, and Lisco (2004), for example, showed that negotiator behavior can be largely influenced by experienced anger. On a more general level Forgas (1995) posits and Forgas (1998) shows that affect influences judgment, choice, and information processing, and Barry, Fulmer, and Goates (2006) contemplate that affect has a "priming effect" on information processing. With respect to affect as experienced consequence and behavioral outcome Hegtvedt and Killian (1999), for example, showed that perceived procedural justice impacts emotional feelings about the bargaining process. Similarly Oliver (1993) provides evidence that attribute satisfaction is related to affective experiences. Schroth, Bain-Chekal, and Caldwell (2005) further identified specific words that trigger different affective reactions. The here-mentioned effects and consequences related to affect are by far not complete, but exemplify the importance of understanding the way affect and emotions work in order to analyze their dynamics more profoundly. Also these findings illustrate that an integrated and interconnected view of "static" characteristics of affect lies at the bottom of the research of affective dynamics. For a more comprehensive discussion regarding this issue see, for example, Barry and Fulmer (2004a).

Although the analysis of affect as antecedence or outcome factors provides important insights for further research on the dynamics of affect, a conceptualization, and more important, the analysis of affect as static characteristic would confine our understanding of this central source of influence in negotiations, since the dynamic process of affective and emotional evolvement is more than just the sum of its underlying static parts (cf. Weick & Roberts, 1993). Put differently, affective expressions and emotions being „collective constructs should be studied as a system of social interactions" (Bartel & Saavedra, 2000: 202). In this respect, it is important to recognize that the negotiators' affective expressions are not simple static and unrelated phenomena, but are mutually interconnected and thereby contribute jointly to a dynamic context of interaction, which is evolving and changing over time. Thus, negotiators are socially and emotionally bound together, meaning that every affective expression may trigger a specific affective response, which may in turn again lead to particular affective behaviors and consequences (Bartel & Saavedra, 2000; Morris & Keltner, 2000). Butt and Choi (2006) show that negotiators are interconnected in such a complex manner by providing evidence for a behavior-emotion-outcome linkage. They found, for example, that other-caused failure leads to anger which may further lead to more dominating or yielding behavior. Conversely other-caused success leads to gratitude which may further result in more integrating or compromising behavior. Similarly, emotions may also induce the establishment of direct "emotional linkages" between negotiators. In this respect research, for example, indicates that emotions can be contagious and that negotiators may influence each other emotion-wise (Allred, 1999; Morris & Keltner, 2000), which further highlights the importance of understanding the complex role affect plays in and throughout negotiations.

The first comprehensive model of affective dynamics in negotiations is the dynamic model of affect developed by Barry and Oliver (1996). The authors explicate that affect may play potentially different roles at different stages in the negotiation process and that the negotiators' individual affective behaviors and experiences are regarded as being interconnected throughout the negotiation process. In that sense, negotiators constantly show emotions and experience affect and thereby contribute to the development of a unique affective climate that evolves and may change over time. Put differently, implicit or explicit perceptions of behaviors and emotions shown by one's negotiation partner are constantly being internally decoded and interpreted, and thereby impact one's own subsequent behaviors, affective reactions, and emotional states, over time. Kumar (1997) likewise notes that events within negotiations are subjected to ongoing reinterpretations and highlights that this includes affect.

Overall, affect needs to be considered as social and relational phenomenon in a dynamic process that relates to causes for as well as consequences of specific events. Affect has and fulfills specific functions, operates on an intra-personal and inter-personal level, is communicative, emerges via social interactions and continuously shapes these, and thus cannot be regarded as strictly individual and private characteristic (Morris & Keltner, 2000; Parkinson, 1996). Because affective behaviors and communications continuously surface and shape the social processes of interaction, they provide meaning to the context, as well as for individuals that are interacting therein (Parkinson, 1996), and thereby also predispose transitions from one negotiation event to another.

In support of this line of argumentation, the current research takes an integrative perspective on the impact of affective behaviors in online negotiations, by disentangling the complexities of affective behaviors in the negotiation process. For doing so, a dynamic perspective of affective behaviors will be outlined in the subsequent chapters. Addressing the complexities of affective dynamics with such a perspective allows us to investigate the single effects that shape these dynamics in isolation as well as in conjunction and interaction, also over the negotiation process. In particular, we will address procedural dynamics, which refer to continuous evolvement patterns and changes of and throughout the negotiation process, and behavioral dynamics, which refer to the interconnected behaviors of the negotiators at inter-personal and intra-personal levels. This allows us to investigate the affective behaviors within and throughout the negotiation process with more precision or accuracy than other studies that investigated expressions of affect in negotiations. At this point it is also worth highlighting again that we are particularly interested in investigating the dynamics of affective behaviors or expressions within the negotiation process, which will also be outlined in more detail in the following chapters. The effects that contribute to and shape the dynamics of affective behaviors will be introduced on a theoretical basis in the subsequent sections.

B.2. Procedural and Behavioral Dynamics of Affect

The study of affect has come a long way and in order to understand its comprehensive role in and for negotiations it is necessary to grasp its dynamic nature within and throughout the negotiation process in more detail. Strictly speaking, the dynamics of affective behaviors in negotiations comprise procedural dynamics and behavioral dynamics. As noted in the previous chapter, behavioral dynamics (i.e., the behaviors of the negotiators in interaction) and procedural dynamics (i.e., the continuous evolvement and change over time) are naturally related, which means that this distinction serves as theoretical simplification. Nevertheless, this distinction is used to justify and explain why and how the changing and evolving negotiation process and the interconnected behaviors of the negotiators are interrelated and embedded, as well as to explicate that both, procedural and behavioral, dynamics constitute the dynamics of affective behaviors in negotiations. Behavioral dynamics further comprise an intra-personal and an inter-personal level. An intra-personal level because negotiators, implicitly or explicitly, monitor their own affect and emotions, may change or adapt these, and thus influence their own affective behavior over time. An inter-personal level because negotiators engage in a socio-relational process of interaction and thus constantly deal with and influence each others' emotions and affective behaviors. By interacting with each other, the negotiators further evoke a shared or collective affective climate, which provides additional meaning with respect to the interaction context. The procedural dynamics explain that affective behaviors evolve and may change over the time-span of a negotiation encounter, that is, over the entire negotiation process.

Taking on such a dynamic perspective for the analysis of affective behaviors enables us to "pry open the black box of the negotiation process [and investigate the] links between input factors, patterns of communication, and negotiation outcomes" (Weingart & Olekalns, 2004: 154). Accordingly, we are able to complement existing research, which is mostly concerned with either inputs to or outcomes of negotiations, by addressing what lies in between, namely the negotiation process, which is shaped by the continuous interaction of the negotiators (Weingart & Olekalns, 2004). The next sections will thus highlight the comprehensive roles of intra-personal and inter-personal effects of affective behaviors, as well as the functions they play in and throughout the negotiation process. Because this "cluster of social factors constitutes the essence of emotional processes" (Parkinson, 1996: 676), affective behaviors can and need to be defined as being social by nature (Barsade, 2002; Kelly & Barsade, 2001; Parkinson, 1996), and consequently should be analyzed from a dynamic perspective (as briefly outlined above).

In line with such a dynamic perspective some, but still few, researchers in particular highlight the importance of taking into account intra-personal as well as inter-personal effects of affect in negotiations (Barry, 2008; Bartel & Saavedra, 2000; Côté, 2005; George, 1990; Keltner & Kring, 1998; Morris & Keltner, 2000; Overbeck, Neale, & Govan, 2010). Incorporating these two levels of affective behaviors and influences is argued to be especially important in negotiations (Overbeck et al., 2010; Turel, 2010), since a strict focus on either the intra-personal or the inter-personal level would oversimplify the complexity of the social interaction process and ignore one of these two central driving forces of social interactions (Raudenbush, Brennan, & Barnett, 1995). Regarding this issue, Turel (2010) and Overbeck, Neale, and Govan (2010), however, also state that most research conducted in the field of negotiations still disregards one of these two levels, mostly by focusing on one negotiator only, that is, on the intra-personal level. Hence, most commonly the potential impact of the counterpart is being disregarded (Kenny & Cook, 1999). One of the reasons for this one-sided focus is the still prominent conceptualization of affect in line with the discrete perspective of emotions (see chapter A.2) (Fischer & Van Kleef, 2010; Liu, 2009). Relying on this perspective and defining affect, for example, in terms of appraisals or action tendencies (e.g., Lazarus, 1991) theoretically constrains the focus of analysis to one negotiator and elides the social and affective interaction between the negotiators. Consequently, strictly adhering to a discrete perspective of emotions may be problematic with regard to a proper definition of emotions and affect, and moreover also with regard to a proper conceptualization of affect within the social interaction process. Parkinson (2009) similarly highlighted these limitations, in particular with respect to appraisal theories.

Regardless of why contemporary research still emphasizes the intra-personal level only, the problem remains that the potential impact of a negotiation partner on the focal negotiator is excluded and the inter-personal level of interaction ignored, which renders an adequate analysis of, for example, emotional reciprocity (Overbeck et al., 2010), or emotional linkages (Ilies, Wagner, & Morgeson, 2007) impossible. Put differently, a strict focus on the intra-personal level ignores other phenomena and dynamics, and accordingly treats interdependent factors, such as negotiators and their affective behaviors, as independent from each other (Bonito, 2002; Butt et al., 2005; Liu, 2009; Maitlis & Ozcelik, 2004). Indisputably, this is problematic for the analysis of affective behaviors in negotiations, where interdependence between negotiators can naturally be assumed as being of high importance for the progression of the negotiation (Butt et al., 2005; Liu & Wilson, 2011; O'Connor & Arnold, 2001). This shortcoming of ignoring an interaction partner’s causal effect on the counterpart’s behavior was initially referred to as pseudounilaterality (Duncan, Kanki, Mokros, & Fiske, 1984; Kenny, 1996b), and is nowadays commonly denoted as assumption of independence (Butt et al., 2005; Kenny, 1995; Kenny & Judd, 1986; Klein, Dansereau, & Hall, 1994). To the contrary, researchers may also fail to assess intra-personal effects, meaning the effect an individual has on him- or herself over time (Kenny & Cook, 1999). In negotiations, which are typically conducted over a specific period of time, the importance of not ignoring such an effect might be obvious. For example, if a negotiator shows positive emotions in one negotiation utterance this might influence his or her own subsequent behaviors and could increase the likelihood of that individual showing positive emotions or more cooperative behaviors in a later negotiation utterance. In addition, the inter-personal communication and expression of affect also establishes a shared affective climate between the negotiators. Since affective expressions evolve out of the interaction process, the evoked affective climate will also provide information about the affective behaviors of the negotiators (cf. Barrett, 2006).

In sum, an appropriate analysis of affective behaviors in negotiations needs to include intra-personal as well as inter-personal effects, in order to account for relational complexities (Barry, 2008; Campbell & Kashy, 2002; Côté, 2005; Kenny & Cook, 1999; Luo, Chen, Yue, Zhang, Zhaoyang, & Xu, 2008; Morris & Keltner, 2000; Overbeck et al., 2010). Otherwise these effects will be analyzed out of context which may provide misleading results (Maitlis & Ozcelik, 2004; Raudenbush et al., 1995). Moreover, by recognizing the importance of intra-personal and inter-personal effects of affective behaviors and influences, we acknowledge the interactional characteristics as well as the social nature of affect (Barry et al., 2004; Fischer & Van Kleef, 2010; Parkinson, 1996; Van Kleef et al., 2004a). Thus, only a proper assessment of affect and the effects associated with it makes it possible to analyze the dynamic characteristics of affective behaviors within the negotiation process. This point, which was also recently stressed by Fischer and Van Kleef (2010), further highlights the interconnection between behavioral and procedural dynamics, since affective behaviors change and evolve over the negotiation process and thus over time (Gratch et al., 2009; Marsella & Gratch, 2009), as do intra-personal and inter-personal effects of affective influence. Hence, a proper conceptualization and analysis of procedural dynamics in line with behavioral dynamics is important to advance research with respect to the dynamic impacts of affective behaviors in and throughout the negotiation process, but also because communication, and hence also the expression of affect, is a central force that drives a negotiation encounter (Barry & Oliver, 1996; Koeszegi & Vetschera, 2010; Morris & Keltner, 2000; Weingart & Olekalns, 2004).

Overall, approaching the analysis of affect in negotiations from a dynamic perspective allows us to develop a more detailed understanding of affective behaviors within and throughout the negotiation process, as well as to address the shortcomings of existing research in this domain. Since the negotiation process is considered to be dynamic and evolves out of the continuous interaction between the negotiators over time, it is moreover important to regard their behaviors as interdependent (Olekalns & Weingart, 2008). Thus, although the subsequent chapters will initially provide a more elaborate introduction with respect to each of the effects that contribute to the overall dynamics of affective behaviors in isolation from each other, we also need to bear in mind the bigger picture, meaning the interconnection of these effects. Hence, the following separate discussion of these effects should merely be considered as a theoretical simplification, in order to further highlight the necessity of their inclusion for an appropriate analysis of affective behaviors in and throughout the negotiation process. We will, nevertheless, conclude with an integrated discussion of these effects to show why and how their interdependence should be considered for the analysis of the dynamics of affective behaviors with respect to the negotiation process.

B.2.1. Behavioral Dynamics: The Intra-Personal Level

The analysis of affect in negotiations largely roots in the focus on intra-personal effects, that is, effects originating within a person and influencing a person from within (Ekman & Davidson, 1993; Keltner & Haidt, 1999). Here, research concentrated on the individual organism and related cognitive factors and processes (Keltner & Haidt, 1999; Morris & Keltner, 2000) that shape and guide individual behaviors (Allred et al., 1997; Butt et al., 2005). Hence, intra-personal aspects of affect only refer to processes within an individual which influence that person's own affective experiences and behaviors (Côté, 2005; Van Kleef et al., 2004a). As already indicated, this specific focus is, however, limited in the sense that it excludes the process of interaction, which takes place between individuals (Butt et al., 2005; Maitlis & Ozcelik, 2004). Nevertheless, studies focusing on the intra-personal aspects of affect provide an important starting point for any further analysis of affective behaviors, because they illuminate one important area in the "black box" of affective behaviors of individuals.

Since the courses of affective events are strongly interconnected with cognitive processes (e.g., Frijda, 1986; Smith & Ellsworth, 1985), the intra-personal aspects of affect are also summarized as "affect and cognition (AC) perspective" (Morris & Keltner, 2000: 8). As outlined by Ortony, Clore, and Foss (1987) and Keltner and Haidt (1999), studies providing empirical support in line with this perspective, for example, focused on cognitive aspects such as perceptions (Leventhal & Scherer, 1987), judgments (Schwarz & Clore, 1983), or memory (Bower, 1981), as well as appraisals (Smith & Ellsworth, 1985), action tendencies (Frijda et al., 1989), or physiological changes such as in the central nervous system (Davidson, 1993). Moreover, these studies mainly relied on self-reports gathered by the participants of these studies and on the induction of affect (Carnevale & Isen, 1986; Isen & Levin, 1972; Keltner & Haidt, 1999). For a more detailed summary of early studies providing support for the AC perspective the interested reader is referred to Morris and Keltner (2000).

Overall, Morris and Keltner (2000) highlight that research related to the AC perspective shows that affect impacts cognitive processes and thereby drives a negotiator's behaviors, mostly via three mechanisms. First, since affect influences judgments and memory (Bower, 1991), it impacts the storage and retrieval of information, in a sense that currently experienced affect makes it more likely to retrieve past information that was stored under similar affective circumstances. Second, since affect is a source of information that individuals additionally rely on when judging a situation (Schwarz, 1990), it impacts the evaluation of an opponent's behaviors. A similar point was made by attribution theory (Kelley & Michela, 1980) and later extensions thereof (Schwarz, 2000), arguing that affect results from attributions individuals make about contextual elements, such as their opponent or anticipated outcomes (Maitlis & Ozcelik, 2004). Third, since affect can also be differentiated in terms of intensity or evoked arousal, it may further provoke specific heuristics that result in a biased processing of information. With respect to this latter point it is, however, important to note that Morris and Keltner (2000) only refer to the impact of negative emotions. Nevertheless, other research shows that these effects are also related to positive emotions (Barry & Oliver, 1996; Kumar, 1997).

These mechanisms explain how cognitive processes influence a person's own affective behaviors and thus why it is important to consider intra-personal aspects of affect. The next question to be asked then is what kind of behavior can be expected to result from affect at the intra-personal level.

In general, research provides evidence showing that intra-personal positive affect leads to more cooperative behaviors, whereas negative affect leads to more competitive behaviors (Barsade, 2002; Carnevale & Isen, 1986; Forgas, 1998; Isen & Levin, 1972; Levin & Isen, 1975; Pruitt, 1981). Consequently, it is argued that the tactical behaviors of individuals (cooperative or competitive), in line with their motivational orientation (concern for their own outcome only or for their own and their opponent's outcome) (Pruitt, 1981; Pruitt & Rubin, 1986), is at least partly grounded in affective experiences (Barry & Oliver, 1996). Relatedly, positive affect induces individuals to make more concessions and to behave in a more integrative manner, whereas the opposite was found for negative affect (Baron, 1990; Forgas, 1998; Hollingshead & Carnevale, 1990). Moreover, conflict is principally positively related to negative affect (Jehn, 1995) whereas positive affect is generally negatively related to contentious communication and behaviors (Carnevale & Isen, 1986). Also, positive affect is argued to increase helping and prosocial behaviors (Batson, Coke, Chard, Smith, & Taliaferro, 1979; George & Brief, 1992), as well as trust in the opponent (Morris & Keltner, 2000), whereas negative affect, to the contrary, induces more defensive and distrusting behaviors (Allred et al., 1997; Morris & Keltner, 2000), which may lead to an increased likelihood to reject offers (Pillutla & Murnighan, 1996). Further, positive affect is shown to facilitate problem solving behavior and value creation (Carnevale & Isen, 1986), as well as promote creativity (Isen et al., 1987) and flexibility (Druckman & Broome, 1991). With respect to outcomes, positive affect generally benefits the achievement of high outcomes and joint gains (Allred et al., 1997; Carnevale & Isen, 1986), whereas negative affect is related to lower joint gains and a reduced likelihood to collaborate again with the same opponent (Allred et al., 1997). Moreover, it is argued that positive affect may increase performance (Barsade, 2002; Forgas, 1998; Staw & Barsade, 1993; Staw, Sutton, & Pelled, 1994), as it fosters logical reasoning and creative problem solving behavior. However, other pieces of research state that positive affect may also induce individuals to see things through rose-covered glasses, which biases their perceptions of reality (Kramer et al., 1993; Morris & Keltner, 2000).

In sum, although some discussion remains regarding specific effects and consequences of intra-personal affect (Barsade, 2002; Staw & Barsade, 1993), scientific evidence strongly suggests that affect is central to decision making and related behaviors (Damasio, 1994; Maitlis & Ozcelik, 2004). Consequently, one important characteristic of intra-personal affect is that it also serves social functions (Keltner & Haidt, 1999). In particular, researchers posit that intra-personal affect serves as information (Keltner & Haidt, 1999; Oatley & Johnson-Laird, 1987; Schwarz & Clore, 1993), which is used by individuals to interpret contextual stimuli (Campos, Campos, & Barrett, 1989). Hence, experienced positive or negative affect informs a person, for example, about the perceived justice or injustice of specific social events (Solomon, 1989), about the possibilities and benefits of responding to certain observed behaviors in kind (Nesse, 1990), or about the opponent's strategic orientation (Weingart & Olekalns, 2004). Such information provided by intra-personal affect is further being reassessed on a continuous basis, which may lead to an update of affect (Barry & Oliver, 1996) over time. It is this process of reassessment and potential updating of affect that results in intra-personal affective contagion (Barsade, 2002), which describes the affective influence a person has on him- or herself over time. In this respect Keltner and Haidt (1999) similarly explain that these intra-personal processes prepare individuals to react and behave in a certain manner, which includes subsequent expressions of affect (Oatley, 2009; Oatley & Johnson-Laird, 1987). Also, intra-personal processes may be conscious self-perception processes, which describe deliberate reflections about one's own affective behaviors (Bartel & Saavedra, 2000), or operate at a more subconscious level. The important point is that individuals do not only reflect about others' affective expressions but also about their own and thus also attempt to manage their own affective behaviors and expressions. By doing so, a negotiator may keep his own expressions of affect in sync or adjust them in order to appropriately respond to a change in his or her social environment. In line with the outlined behavioral dynamics of affect, it is exactly these processes that drive intra-personal experiences and expressions of affect and result in the consistency or change of affective behaviors at the intra-personal level.

Moreover, the above discussion also implicates that a focus on the intra-personal level of affective behavior only is problematic with respect to the analysis of affective behavior and expressions in negotiations, since it excludes the process of social interaction between the negotiators (Morris & Keltner, 2000). Put differently, affective expressions of negotiators are also influenced by the affective behaviors of their opponent, which arise out of the interaction process. Thus, although intra-personal effects are central to affective behavior, they do not constitute the only source for affective behaviors in social interactions. Nevertheless, and as indicted before, research for long largely focused on the intra-personal aspects of affect only. This shortcoming is also argued to be indebted to the "methodological individualism" (Morris & Keltner, 2000: 12) imposed by cognitive research. In order to overcome this limitation and to gain a more comprehensive and complete picture of the impact of affect in the negotiation process, we need to include inter-personal aspect of affect as well. These are discussed in the subsequent chapter.

B.2.2. Behavioral Dynamics: The Inter-Personal Level

As outlined in the previous chapter, the intra-personal level of affective behavior provides one important cornerstone for an appropriate analysis of affective behaviors in negotiations, and in particular in and throughout the negotiation process. However, affect also expands beyond the boundaries of individual cognition and consequently also influences inter-personal interactions (Morris & Keltner, 2000). Yet, it is argued that research is still limited with respect to these inter-personal effects of affect (Butt et al., 2005, Van Kleef et al., 2004a, 2004b). As noted by Keltner and Haidt (1999), research on facial expressions (e.g., Ekman, 1993), however, represents an exception with respect to this limitation. Nevertheless, even when the underlying data structure is of dyadic or reciprocal nature, as in most studies of negotiations, the predominant focus of interest lies on the individual negotiator without incorporating the social and inter-personal aspects of affect (Overbeck et al., 2010). In other words, “evidence about the important social effects of emotions” (Overbeck et al., 2010: 128) is still rather rare. This point is further stressed by Fischer and Van Kleef (2010) who outline that not even every 10th paper published in the journal Emotion, within the previous two years in relation to the publication of their own paper, deals with social aspects of emotions. This means that researchers interested in the effects of emotions and affect in social interaction processes generally failed to control for the influence of the interaction partner (Barry & Kochanska, 2010), which was argued to be the “most common error in social-interaction-research” (Kenny, 1996b: 64). Such an erroneous assumption of independence (Kenny & Judd, 1986) thus bases the analysis of social interactions only on the intra-personal level, with the result that affective interdependencies between individuals remain uncovered (Maitlis & Ozcelik, 2004). Excluding the social interaction process and the related inter-personal behaviors from the analysis thus makes it very difficult, if not impossible, to understand affective dynamics. Accordingly, in addition to intra-personal effects, we need to include inter-personal effects of affect for an appropriate analysis of affective behaviors and expressions in negotiations.

In general, we understand inter-personal effects of affective behavior as the influence of affect expressed by one negotiator on affective expressions of his or her opponent (Côté, 2005; Van Kleef et al., 2004a). The justification for the presence of these effects in negotiations lies in the interdependence of the interacting parties (Lewicki, Barry, & Saunders, 2010) and the characterization of negotiations as social processes of interaction (Keltner & Haidt, 1999). Because affective expressions are social phenomena (Parkinson, 1996) that shape and arise out of these processes of inter-personal interaction (Fischer & Van Kleef, 2010), they naturally also influence the interacting parties and their behaviors toward each other. An emotion expressed by one negotiator will be, explicitly or implicitly, picked up by his or her opponent (Ilies et al., 2007; Kelly & Barsade, 2001), which will consequently influence his or her response, to a greater or lesser extent. Accordingly, inter-personal expressions of affect are inherent elements of the social dynamics that govern the negotiation process (Fischer & Van Kleef, 2010). This again highlights that failing to consider these effects is problematic and also that affect and affective behaviors should not be considered as stable or static elements, but to the contrary as dynamically evolving and changing factors of influence (Keltner & Haidt, 1999; Parkinson, 1996). At the heart of this dynamic interaction process naturally lies communication (Weingart & Olekalns, 2004), which transports affective expressions (Anderson & Thompson, 2004, Van Kleef et al., 2004a, 2004b). In general, inter-personal communications of affect are important in negotiations as they shape the relationship between the negotiators (Keltner & Haidt, 1999) and may encourage or discourage them to engage in cooperative behaviors (Moore et al., 1999). Thus communication and affective expressions in particular, are mechanisms of inter-personal coordination (Putnam, 1985) that can impact the social distance between the negotiators or the quality of their relational behaviors (Giles, Coupland, & Coupland, 1991; Taylor & Thomas, 2008), which are also indicated by the negotiators' (affective) responses directed at each other (Olekalns, Brett, & Weingart, 2003). As discussed by Taylor and Thomas (2008), these inter-personal (affective) response patterns are evident in the language people use and can be uncovered by analyzing communication (as also outlined in chapter A.3.7 for text-based communication).

Since inter-personal communication is a dynamic process that links negotiators to each other over the course of a negotiation, affective expressions are one source of subsequent behaviors as well as the result of anterior behaviors (Barry & Oliver, 1996; Parkinson, 1996). Affective expressions by negotiator A induce subsequent affective expressions by his or her opponent B, which will in turn again influence subsequent affective expressions by negotiator A, and so forth. Such patterns or sequences of affective transmissions between negotiators characterize the affective evolvement of the negotiation process and further highlight its complexity. This also indicates that everybody involved in the negotiation process continuously contributes to it "affect-wise", which simply means that the impact of affective expressions should not be underestimated in inter-personal interactions (Parkinson, 1996). Researchers acknowledge this point (Adler et al., 1998; Barry et al., 2004; Butt et al., 2005; Liu, 2009; Morris & Keltner, 2000; Overbeck et al., 2010, Van Kleef et al., 2004a, 2004b) by stressing that affective expressions have important social functions, which is why inter-personal aspects of affect have also been summarized as "social functional (SF) perspective" (Morris & Keltner, 2000: 8). This perspective contrasts the AC perspective that was mentioned in the previous chapter.

The quintessence of the SF perspective is that affect serves important functions in social interactions (Morris & Keltner, 2000). With respect to negotiations it is argued that affective behavior coordinates the social interaction process (Keltner & Buswell, 1997; Keltner & Kring, 1998) mostly by addressing relational problems (Averill, 1980; Hazan & Shaver, 1987; Keltner & Buswell, 1997; Nesse, 1990; Shaver et al., 1987), while the type of affect that is being expressed also is problem dependent (Keltner & Haidt, 1999). According to Morris and Keltner (2000) this highlights that affective expressions cannot only be retraced to intra-personal effects, but also need to be considered as other-directed, and hence inter-personal, communicative elements (Bavelas, Black, Lemery, & Mullett, 1986). Considering affect at the inter-personal level thus addresses the influence of affective expressions on the receiver or observer of these (Morris & Keltner, 2000). Consequently, the SF perspective seeks to explain the "interpersonal mechanisms through which one person's emotional expression impacts other persons" (Morris & Keltner, 2000: 16). In more detail, three such mechanisms are identified and explain that affective expressions may evoke reciprocal or complementary (expressions of) affect, are sources of information, and may serve as incentives (Keltner & Haidt, 1999; Morris & Keltner, 2000; Van Kleef et al., 2004a). Importantly, all three of these mechanisms explain processes that can induce inter-personal expressions of affect and related effects of affective influence on the affective expressions of the interaction partner, and hence are also denoted as effects of affective transfer (Fischer &

Van Kleef, 2010; Parkinson, 1996). Moreover, these effects of affective transfer may be of implicit nature, as well as of explicit nature.

Explicit processes are induced and used "on purpose" such that individuals are aware of what or why they are doing something. To the contrary, implicit processes are the result of more unconscious and thus automatic mechanisms. Although both processes of influence are believed to jointly influence socio-emotional behaviors (Totterdell, 2000), their underlying mechanisms of operation differ. In literature explicit processes are also referred to as conscious processes (Barsade, 2002; Bartel & Saavedra, 2000; Hsee, Hatfield, Carlson, & Chemtob, 1990; Totterdell, 2000), cognitive and behavioral processes (Doherty, 1997; Ilies et al., 2007), or processes of social and emotional comparison (Bartel & Saavedra, 2000; Gump & Kulik, 1997), whereas implicit processes are also referred to as non-conscious and subconscious processes (Barsade, 2002; Hsee et al., 1990; Totterdell, 2000), psychological processes (Ilies et al., 2007), or processes of primitive emotional contagion (Barsade, 2002; Bartel & Saavedra, 2000; Gump & Kulik, 1997; Hatfield, Cacioppo, & Rapson, 1993). Both, explicit and implicit, processes of affective transfer emphasize the importance of affect in social interactions (Barsade, 2002; Bartel & Saavedra, 2000; Ilies et al., 2007, Kelly & Barsade, 2001, 2001), by highlighting the relational capabilities of interactional and affective synchrony (Bartel & Saavedra, 2000; Bavelas et al., 1986; Doherty, 1997; Gump & Kulik, 1997; Hatfield et al., 1993; Hsee et al., 1990; Ilies et al., 2007; Totterdell, 2000), emotional coordination (Bartel & Saavedra, 2000; Gump & Kulik, 1997; Hsee et al., 1990; Hsee, Hatfield, & Chemtob, 1992; Totterdell, 2000), and emotional adaptation (Bartel & Saavedra, 2000; Doherty, 1997; Gump & Kulik, 1997; Hsee et al., 1990; Hsee et al., 1992; Totterdell, 2000). In order to better grasp the complexities that shape the process of affective transfer and to understand why and, in particular, how inter-personal expressions of affect may impact negotiations, we elaborate more on the mechanisms that drive this process in the following sections.

B.2.2.a. Affective Complementarity and Reciprocity

We begin by addressing the mechanisms of affective complementarity and reciprocity. It is argued that the communication of affect induces these effects and that they guide individuals with respect to their behaviors in social situations (Keltner & Haidt, 1999; Morris & Keltner, 2000). For example, anger (Dimberg & Öhman, 1996; Keltner & Kring, 1998) is linked to behaviors of fear in an observer, distress was shown to evoke behaviors of sympathy (Eisenberg et al., 1989), or embarrassment is argued to induce behaviors of forgiveness (Keltner & Buswell, 1997). Relatedly, Van Kleef, De Dreu, and Manstead (2004a) found that displays of anger induced cooperative behaviors and that displays of happiness induced competitive behaviors, which demonstrates that inter-personal expressions of affect may have far-ranging effects even to the contrary of what may be expected. Also, they showed that emotions do not only impact behavioral reactions in general, but that emotions are being transferred between negotiators. They found that negative emotions are reciprocated as are positive emotions. Accordingly, their study provides further evidence that the dynamics of the negotiation process are not only shaped by behavior-emotion-behavior links, but also by direct emotion-emotion links, which shows that emotional and affective reciprocity largely contributes to the social dynamics of negotiations (Van Kleef et al., 2004a, 2004b). In another study it was also found that anger may result in both, a decrease of integrative behaviors as well as a decrease of distributive behaviors in negotiations (Liu, 2009). These results confirm that the inter-personal behaviors of negotiators do not simply follow one predominant path, but to the contrary, that the same affective expression may induce different kinds of responses, which for example depends on the negotiation context (Van Kleef, De Dreu, & Manstead, 2010b; Weingart & Olekalns, 2004). Accordingly, and as Liu and Wilson (2011) point out, affective expressions may result in subsequent similar behaviors of the opponent, that is, reciprocal behaviors (Friedman et al., 2004), or in subsequent opposing behaviors of the opponent, that is, complementary behaviors (Van Kleef et al., 2004a). Adair and Brett (2005) propose an even finer grained distinction of these inter-personal patterns of affective transfer by introducing the third category of structural sequences. Structural sequences are related to complementary processes with the difference being that complementary sequences denote different behaviors of similar strategic orientation, whereas structural sequences denote different behaviors of different strategic orientation (Adair & Brett, 2005).

Before we elaborate further on these different processes of affective transfer, it is important to point out that whether or not affect is being transferred on an inter-personal level also co-depends on several distinct factors. First and foremost individuals need to be motivated to pay attention to affect (Van Kleef et al., 2004a, 2004b) and be susceptible to affective influences (Doherty, 1997; Ilies et al., 2007), at least to a certain degree. Second, Barsade (2002) and Bartel and Saavedra (2000) showed that processes of affective transfer also dependent on the type of affect being expressed. Barsade (2002), for example, found that positive and negative emotions are contagious in general, and that emotional intensity only seems to impact affective transfer when it is high. Accordingly, high-energy emotions such as "cheerful" are more likely to be transferred than low-energy emotions such as "serene warmth". Third, affective transfer and resulting processes of affective convergence depend on the strength of interrelatedness between individuals (Hatfield, Cacioppo, & Rapson, 1994) and is found to be stronger in contexts of high social and task interdependence (Bartel & Saavedra, 2000). Accordingly, negotiations may generally be characterized by frequent affective convergence or transfer between negotiators, due to the necessity of mutual adjustment and cooperation. High social interdependence increases sensitivity, attention, and responsiveness to others' behaviors, which may lead to more coordinated behaviors and shared contextual perceptions, resulting in the synchronization of negotiation moves as well as of individual expressions of affect (Bartel & Saavedra, 2000). Relatedly, Van Kleef, De Dreu, and Manstead (2010b) posit that affective convergence is to occur more likely and easily in cooperative situations as compared to competitive ones. It is argued that a competitive context is characterized by lower levels of trust which is why affective information revealed by one person is interpreted in terms of its strategic rather than its social importance (Van Kleef, 2009). Happiness expressed in a competitive context may therefore lead to the conclusion that a counterpart is a weak or undemanding bargainer and result in subsequent competitive behaviors (Van Kleef et al., 2004a, 2004b). In a cooperative context, however, happiness was shown to elicit cooperative behaviors (Van Kleef, 2009). Accordingly, it is argued that affective expressions in cooperative settings are being perceived and interpreted in terms of their social functions which induces convergence of affective expressions, whereas affective expressions in competitive situations are perceived and interpreted in terms of their strategic functions which results in more strategic behavior (Van Kleef et al., 2004a). Fourth, relational quality, such as inter-personal liking or attraction, influences the desire to work on and maintain a relationship. If relational quality is high, or if people are willing to invest in it, then inter-personal ties will be stronger and individuals will pay more attention to each others' behaviors and in turn be more inclined to synchronize their behaviors and expressions of affect (Bartel & Saavedra, 2000; Hatfield et al., 1994). Finally, it was found that the factor time facilitates affective transfer and subsequent affective convergence (Totterdell, 2000). People interacting on a continuous basis seem to become "affectively linked" over time and this process appears to be stronger for positive affect (Totterdell, Kellett, Teuchmann, & Briner, 1998).

B.2.2.a.1. Emotional Contagion

One process that drives effects of affective complementarity or reciprocity is emotional contagion. In general, emotional contagion, or more precisely primitive emotional contagion, refers to a process of automatic, and hence implicit, affective transfer (Hatfield et al., 1993, 1994), taking place between individuals who interact with each other (Parkinson, 1996). Accordingly, an expression of positive affect by one negotiator may result in a subsequent perception of positive affect by the counterpart, which is equally true for the expression and perception of negative affect (Butt et al., 2005; Johnson & Cooper, 2009; Maitlis & Ozcelik, 2004). Hatfield, Cacioppo, and Rapson (1993) and Hatfield, Cacioppo, and Rapson (1994) elaborate on this process and posit that individuals automatically make sense of observed affective expressions and behaviors and thereby "catch" each others' emotions. By doing so, people start to feel emotions others show or express and may ultimately mimic what they observe and perceive, and accordingly engage in affective synchronization with their counterpart (Barsade, 2002; Van Kleef et al., 2010b). Bernieri, Reznick, and Rosenthal (1988), for example, provide evidence for this automatic contagion between parents and their infants. Other studies confirm these effects for general affective behaviors (Hatfield et al., 1994) as well as speech, that is, affective expressions (Neumann & Strack, 2000) in dyadic FtF settings. Moreover, it is argued that effects of emotional contagion are contingent on valence and arousal, that is, the kind of affect being expressed (Barsade, 2002). With respect to valence it is generally found that negative emotions are more contagious than positive emotions and result in more pronounced and faster affective replies (Joiner, JR., 1994; Rozin & Royzman, 2001; Wills, Weiss, & Patterson, 1974). One explanation for this effect is that individuals are biased toward negative affect and correspondingly perceive negatively valenced affective expressions as more severe and important than positively valenced ones (Maslach, 1979; Rozin & Royzman, 2001). Accordingly, expressions of negative affect are more likely to induce an escalation of these (Bartel & Saavedra, 2000; Raush, 1965). Interestingly, evidence for a contagious effect of positively valence expressions of affect, and more so for an escalation of these, is more limited (Barsade, 2002; Williams & Alliger, 1994). With respect to affective arousal, also referred to as activation, energy, or intensity, it is argued that the expression of high-arousal emotions should lead to emotional contagion more quickly and easily (Barsade, 2002; Bartel & Saavedra, 2000). An explanation for this effect is that such kinds of affect can be expressed and will be noticed more easily (Friedman, Prince, Riggio, & DiMatteo, 1980; Friedman & Riggio, 1981; Maitlis & Ozcelik, 2004). Recognizing these mediating effects of affective valence and arousal Barsade (2002), however, found the contagious effects of positively and negatively valenced emotions not to be different from each other. Also, negatively valenced and low-arousal emotions were found to be less powerful than expected, which was explained by the lower social orientation that is ascribed to such emotions.

In sum, research provides strong, however mixed, evidence showing that affect is contagious (Hsee et al., 1990; Maitlis & Ozcelik, 2004) and that emotional contagion can be expected and needs to be accounted for in social interactions (e.g., Barsade, 2002; Van Kleef et al., 2010b). Importantly, emotional contagion may manifest itself at the intra-personal level only, that is, cognitively or physiologically, or also expand to the inter-personal level, that is, behaviorally (Doherty, 1997). Put differently, if emotional contagion occurs, affect is indeed transferred between individuals meaning that affect is at least reciprocated intra-individually, but this does not necessarily have to result in a subsequent reciprocation of affective expressions. Conversely expressed, “contagion is not necessary to generate emotional reciprocity” (Friedman et al., 2004: 374). Thus, emotional contagion only partly explains mechanisms of affective complementarity or reciprocity, which is why we will complete the picture by further addressing the remaining issues that pertain to these mechanisms.

B.2.2.a.2. Affective Reciprocity

In order to get closer to a thorough understanding of affective reciprocity (and complementarity) it is helpful to initially distinguish it from the just discussed process of emotional contagion. As explained, emotional contagion may result in the reciprocation of affect, but it doesn’t have to. Emotional contagion refers to the transfer of affect between individuals in the sense of “I feel what you are feeling”, whereas affective reciprocity refers to the mimicking of affective behaviors in the sense of “I show the emotion that you are showing”. The interconnection between these processes is that if emotional contagion occurs the reciprocation of affect may be more likely (Smith, Pruitt, & Carnevale, 1982; Weingart et al., 1999), since then the affective behaviors of the interactants will result from more similar intra-personal affective conditions. Nevertheless, emotional contagion is not necessary for the reciprocation of affect (Friedman et al., 2004), as was for example shown by Coyne (1976) who found that depressed people can evoke similar emotions in formerly non-depressed people (Totterdell, 2000).

This differentiation between emotional contagion and reciprocity becomes more obvious by further defining reciprocity. In general, reciprocity, or more specifically a reciprocal sequence, denotes the response to specific behaviors with very similar or the same behaviors (Adair & Brett, 2005). In particular, as pointed out by Weingart, Prietula, Hyder, and Genovese (1999), these kinds of sequences are based on the norm of reciprocity (Gouldner, 1960), which basically refers to the interchange of benefits. In negotiations, however, not every act of reciprocity is grounded in receiving and returning benefits, as exemplified by acts of logrolling or the transfer of affect (Weingart et al., 1999). Correspondingly, it was for example found that distributive and integrative behaviors tend to be matched with equivalent behavioral reactions (Olekalns & Smith, 2003; Putnam & Jones, 1982), as are concessions (Esser & Komorita, 1975), trusting behaviors (Malhotra, 2004), or affective expressions (Van Kleef et al., 2004a). Accordingly, reciprocal sequences may refer to any kind of behavior or expression that is responded to in kind (Weingart et al., 1999), and not only to simple exchanges of benefits. In addition, Parkinson (1996) notes that the reciprocation of affect may further proceed on a more direct level via the communication of explicit affective language, as well as on a more indirect level via non-verbal communication. Hence, and importantly, affective expressions, irrespective of their direct or indirect nature, may be reciprocated just as any other sort of behavior in negotiations.

Moreover, reciprocity is shown to be a prevalent norm in dyadic interactions in general and negotiations in particular (Gouldner, 1960; Putnam & Jones, 1982; Weingart et al., 1999), since these are shaped by a high degree of interdependence of the interactants (Davis, 1977; Ludwig, Franco, & Malloy, 1986; Rook, 1987; Weingart et al., 1999). One explanation for these findings is that a situation of interdependence ties the interactants together in terms of (social) costs and rewards (Johnson & Cooper, 2009; Whatley et al., 1999). Also, and relatedly, people act based on their perceptions and evaluations of the behaviors and expressions shown by their opponent (Kenny, 1994; Liu & Wilson, 2011). A subsequent behavior or expression of reciprocity may then indicate agreement with, serve to pursue, or serve to reflect and throw back the antecedent action. Additionally, it is argued that reciprocity originates in a feeling of obligation and therefore also relates to fairness (Johnson et al., 2009). With respect to affect this can mean that, for example, expressions of positive emotions may be met with subsequent expressions of similar positive emotions, but also that expressions of negative emotions may be met with subsequent expressions of similar negative emotions. The latter may, for example, be interpreted as a display of dissatisfaction, that one feels being treated in an unfair manner, or even as a way to punish one's opponent.

Research on affective reciprocity mostly focused on the reciprocation of negative emotions, and in particular on anger (Brett et al., 1998; Friedman et al., 2004; Maitlis & Ozcelik, 2004; Nielek et al., 2010; Van Kleef et al., 2004a; Van Kleef, Dijk, Steinel, Harinck, & Beest, 2008). These results affirm the reciprocation of expressions of anger, and further highlight the immanent dangers of this process by showing that responding to anger with anger lowers the likelihood of reaching an agreement or jointly beneficial outcome. In general, such a reciprocation of negative behaviors or contentious communications is referred to as a conflict spiral (Brett et al., 1998; Pruitt, 1998). Conflict spirals may be set in motion instinctively and automatically at an unconscious level, in particular if negative emotions start to run wild and escalate (Pruitt, 1998). Due to such a dissemination of negative affect the interaction context is colored in a more negative and destructive manner, which also makes it more tedious and difficult to escape from this escalation of negativity (Brett et al., 1998). Other studies confirm these properties of negative affect and refer to these as spiral-of-hatred effect (Nielek et al., 2010) or toxic decision processes (Maitlis & Ozcelik, 2004). Interestingly, evidence for positive cycles of reciprocity is more limited (Friedman et al., 2004; Olekalns & Smith, 2003; Weingart & Olekalns, 2004; Weingart et al., 1999) and even more so with respect to the reciprocation of positive affect (Taylor & Thomas, 2008).

B.2.2.a.3. Affective Mismatching

As indicated before and as may be evident, affective expressions may also not be reciprocated. In negotiations, emotions that are being expressed may be answered with different emotions, for example, in order to break out of a conflict spiral (Brett et al., 1998). Further, not reciprocating, in particular positive affect, can also be regarded as a violation of the norm of reciprocity (Gouldner, 1960; Johnson et al., 2009), which may ultimately induce negative affect (Malhotra, 2004; Pillutla & Murnighan, 1996). Moreover, not reciprocating does not only influence the receiver but also the sender of an expression (Gleason, Iida, Bolger, & Shrout, 2003). In particular, a lack of reciprocity may change the course of actions and may result in an update of perceptions and expectations at the side of the sender as well as the receiver. Gleason, Iida, Bolger, and Shrout (2003), for example, showed that being emotionally supportive has a positive effect on the support giver, but also that if support is not reciprocated, the result is an increase of negative affect on the side of the support giver.

Overall, it can be expected that affective communication will not always lead to a convergence of affective behaviors of the negotiators, which means that negotiations are also shaped by affectively heterogeneous situations. This further also roots in the necessity to engage in cooperative as well as competitive behaviors in most negotiations, and hence in the characterization of negotiations as mixed-motive social interactions (Van Kleef et al., 2004a). The lack of reciprocation is generally termed mismatching in literature (e.g., Rhoades & Carnevale, 1999; Van Kleef et al., 2004a) and refers to a process where some behavior, for example, a cooperative move, is responded to with an opposing move, for example, a competitive one (De Dreu et al., 1994). Similarly, individuals may mismatch each others' affective expressions by expressing, for example, positive emotions as a result to previously observed and perceived negative emotions. In negotiations a negative emotion expressed by one negotiator may, for example, result in the expression of a positive emotion by the counterpart if the signaling function of the previously expressed negative emotion is understood correctly. In that respect, a negative emotion, such as anger, may express unhappiness with a previously received offer. Accordingly, a possible reaction could be the adjustment of the offer and the use of positive emotions as a conciliatory gesture.

As indicated before, behavior that is not being reciprocated, that is, mismatched, can be further sub-classified into complementary and structural sequences (Adair & Brett, 2005). Complementary sequences denote the response to specific behaviors with different behaviors that are, however, similarly oriented and directed at complementary goals or outcomes (Adair & Brett, 2005). For example, a concession by one negotiator may be answered with subsequent positive emotions of gratitude by his or her counterpart, or an expression of anger may be responded to with an expression of guilt or shame. In addition, Butt, Choi, and Jaeger (2005) distinguish complementary from anticomplementary behaviors. The first denote behaviors that are meant to preserve a relationship, whereas the latter define behaviors that are detrimental for the maintenance of a relationship. Structural sequences occur when specific behaviors are responded to with different behaviors of different strategic orientation (Adair & Brett, 2005; Brett et al., 1998; Putnam & Jones, 1982). Accordingly, one negotiator may initiate a change in contextual focus by, for example, responding to a cooperative with a competitive move, or vice versa (Putnam & Jones, 1982). By doing so he or she might either retaliate or unilaterally concede (Brett et al., 1998). Brett, Shapiro, and Lytle (1998) further note that structural sequences are a vital mechanism for breaking negative cycles of reciprocity in negotiations. Relatedly, affect may also lie at the heart of a structural sequence when a negotiator, for example, responds to a positive emotion with a negative one. This might in turn induce a change of affective tone or climate, or provide the counterpart with additional information due to the signaling functions that affect yields in social contexts. Furthermore, these processes of "affective mismatching" can be of explicit nature and occur consciously or on purpose, but may also take place on a more subconscious level as, for example, explained by the process of mood maintenance (Van Kleef et al., 2010b).

B.2.2.a.4. Additional Mechanisms: Affect as Sources of Information and as Incentive (or Deterrent)

Another mechanism (in addition to emotional contagion) that is responsible for the interpersonal influence of affect is the information function of affective expressions and behaviors (Keltner & Haidt, 1999; Morris & Keltner, 2000). In particular, Keltner and Haidt (1999) explain that affect provides its observer with meaning about the sender's affective state (Ekman & Davidson, 1993), his or her social intentions (Fridlund, 1992), his or her relational orientation (Knutson, 1996), and his or her appraisal of contextual stimuli, such as objects or social events, in general (Lazarus, 1991; Mineka & Cook, 1993; Van Kleef et al., 2004a). Accordingly, affective communication is ascribed an important information, feedback, or signaling function (Morris & Keltner, 2000; Van Kleef et al., 2004a) and helps negotiators to better understand their opponents and their behavioral and affective orientations in relation to the social interaction context. This is further exemplified by Van Kleef, De Dreu, and Manstead (2004a) who state that expressions of anger may signal to an opponent that one is a tough negotiator or not willing to concede, whereas happiness may signal satisfaction or the willingness to cooperate. Finally, affect can have the function of incentives or deterrents (Keltner & Haidt, 1999; Morris & Keltner, 2000) and may induce others to behave in a certain manner. In that respect, observed affect can alter a person's awareness about certain issues or events, which may result in an adjustment of subsequently displayed behaviors or affective expressions (Cohn & Tronick, 1987; Tronick, 1989). As Van Kleef, De Dreu, and Manstead (2004a) for example note, perceptions of anger may induce persons to change their course of actions positively, since anger may precede even more destructive behaviors (Daly, 1991), which can jeopardize a successful negotiation resolution. Overall, it is important to be aware that the functions of affect, as either information or incentives, naturally influence a negotiator's decision whether or not to reciprocate affective behaviors and expressions.

B.2.2.a.5. The Bottom Line

In general, the theoretically distinct discussion of mechanisms that are found to be responsible for the inter-personal effects of affective behaviors may be considered as theoretical simplification, if not understood in an integrative manner. Accordingly, we again point out that the potential reciprocation or mismatching of affective behaviors is driven by a number of factors, including the processes related to emotional contagion, as well as the information and incentive functions of affect. These interdependencies and complexities that shape inter-personal affective behaviors may be even more apparent in the context of negotiations. First, negotiations are characterized by limited and asynchronous divisions of information, which induces negotiators to continuously search for additional information, such as the emotions being expressed by their opponent. Also, negotiations are traditionally characterized by cooperative as well as competitive instances, which may lead to the use of available information based on strategic considerations, and perceived relational tensions. Accordingly, observed emotions will be judged based on their informative value, assessed with respect to strategic and relational considerations, and ultimately used, that is, reciprocated or mismatched, in order to induce certain kinds of behaviors on the side of the opponent. Based on such considerations negotiators may use and reciprocate emotions to maintain or initiate cooperative behaviors and trust, justify their offers, assert their position and status, or maintain and adhere to the social norms of interaction (Morris & Keltner, 2000). Thus, Morris and Keltner (2000) conclude that the inter-personal functions of affect are vital for the behavioral and relational coordination of the negotiators and consequently have fundamental impacts on the negotiation process as a whole.

B.2.2.b. The Reciprocation of Affect in CMC

Most of the studies providing us with evidence about the reciprocation or mismatching of affective behaviors in negotiations were conducted in FtF settings. Since we are dealing with text-based CMC the question thus remains whether these findings can be extended to these virtual environments. To answer this question we can first draw on findings from studies on linguistics. Here it was found that individuals reciprocate language and observed linguistic styles (Taylor & Thomas, 2008), which is important for the reciprocation of affective expressions in text-based communication, since in such environments affect is expressed via written language (for a more detailed discussion regarding this point the reader is referred back to chapter A.3). Moreover, it was found that the matching of language patterns is positively related to the negotiation outcome (Taylor, 2002b; Taylor & Thomas, 2008) and the likelihood of reaching an agreement (Swaab, Maddux, Sinaceur, Huffaker, & Diermeier, 2009), but also that language patterns, which can be characterized as emotional, tend to be reciprocated (Niederhoffer & Pennebaker, 2002). Similarly, research dealing with text-based computer-mediated negotiations found that emotions are transferred between the interactants (De Dreu et al., 1994) and argues that affective utterances can be reciprocated in such environments (Thompson & Nadler, 2002). Further, research by Van Kleef, De Dreu, and Manstead (2004a) concludes that expressions of positive emotions as well as of negative emotions seem to be reciprocated, or mismatched, in text-based online negotiations in a similar vein as in FtF negotiations. Additional research confirms these results by providing evidence for negative cycles of reciprocity (Friedman et al., 2004) and flaming (Johnson et al., 2009) in online environments. Flaming is considered to be a prime example for the reciprocation of negative affect in text-based communication and, due to its destructive force, highlights the importance of considering the effects of affect in these contexts. According to Johnson, Cooper, and Chin (2009) one explanation for the prominence of flaming in online environments is found in catharsis theory (Bushman, 2002), which states that people generally prefer to let out their anger by expressing it rather than to keep it bottled up, because doing so impacts their intra-personal affective climate positively. Since text-based communication only allows one to express anger via written language, negative affective expressions are bundled in one channel only, which is one reason why these expressions may be more extreme, and result in more extreme behaviors, as compared to FtF communication where expressions of anger can be communicated in a partitioned manner via different channels. Another explanation for the prominence of flaming in CMC roots in appraisal theory (e.g., Scherer, 1999) and relates to the interaction context which may induce individuals to behave in a more uninhibited manner (Johnson et al., 2009). Accordingly, people may feel less constrained by social norms and as a result may violate these more often. Conversely, people may also judge a violation of these norms by their opponent as more severe and tend to respond to such violations in a more extreme way. In sum research, although limited (in particular to negative emotions), suggests that inter-personal aspects of affect are also important to consider in text-based online environments.

B.2.3. Behavioral Dynamics: The Interrelation of Intra-Personal and Inter-Personal Behaviors

The previous chapters highlighted that affective behaviors of individuals in negotiations are driven by a myriad of social factors (Parkinson, 1996) and thus need to be explained by taking into consideration intra-personal as well as inter-personal effects. By interacting with each other the negotiators further constitute a situation of interdependence (Bartel & Saavedra, 2000), which results in the construction of a shared social and affective reality (Barsade & Gibson, 2007). The underlying assumption of this conclusion is that individuals in interaction continuously influence each other and that this interdependence results in shared experiences (Ilies et al., 2007). A shared and co-constructed “affective climate” thus results from the negotiators’ individual and inter-personal affective behaviors. Put differently, the emotions that negotiators bring with them and continuously update on the intra-personal level, together with the emotions that negotiators express on the inter-personal level, accumulate to a joint emotional or affective climate or context (Kelly & Barsade, 2001), at a collective level. The affective behaviors that originate from the individuals in interaction, and contribute to the affective climate, are also denoted as bottom-up processes (Barsade & Gibson, 1998). Top down processes denote the opposite effect, that is, the influence of the affective climate on the affective experiences and behaviors of each individual (Barsade & Gibson, 1998). As further explained by Barsade and Gibson (1998), these top-down processes shape affective behaviors, impose social norms, account for inter-personal social cohesion, and characterize relational development.

On a more general level it is also expected that a shared situational context (or affective climate) influences the establishment of affective linkages (i.e., effects of emotional contagion or reciprocity), since individuals who are exposed to similar situational stimuli may engage in similar behaviors (Kelly & Barsade, 2001; Totterdell, 2000). For example, if two people negotiate over certain issues of distributive nature they will both be confronted with a competitive situation of interdependence. This may result in more emotional arousal experienced by both negotiators and could lead to more emotional argumentation from both sides, resulting in a tense affective climate. Such situations of affective communication may, however, not always be characterized by a linkage of similar affect and inter-personal affective convergence, but to the contrary, may also be shaped by a less homogeneous affective climate resulting from inter-personal affective diversity. The degree of affective diversity shown by individuals was further found to be an influential characteristic in social interactions (Barsade et al., 2000). In negotiations, inter-personal affective diversity may be found if negotiators are, for example, differently satisfied with certain issues and offers, and as a result react with differing expressions of affect (Barsade et al., 2000; Locke & Horowitz, 1990). Inter-personal affective homogeneity, however, may arise whenever negotiators are similarly satisfied or dissatisfied. Further, it is argued that affective homogeneity is related to higher levels of individual satisfaction (Locke & Horowitz, 1990), or more cooperative behaviors (Barsade et al., 2000), whereas affective heterogeneity should impact social integration, communication, or trusting behaviors, negatively (Amason, 1996; Pelled, 1996; Zenger & Lawrence, 1989). Affective heterogeneity may, however, also induce individuals to introduce and express conflicting points of view, which can result in more constructive discussions or problem solving behaviors, and thus in an increase of performance (Cox, Lobel, & McLeod, 1991; Milliken & Martins, 1996; Watson, Kumar, & Michaelsen, 1993). Moreover, Barsade, Ward, Turner, and Sonnenfeld (2000) hold that these effects of affective diversity apply to both positively as well as negatively valenced affect, which means that also affectively negative linkages can have positive effects if the interactants are comfortable with such a situation and prefer to interact with others that are in a similar negative affective state (Gibbons, 1986; Swann, Hixon, Stein-Seroussi, & Gilbert, 1990; Swann, Stein-Seroussi, & Giesler, 1992). In addition, it is argued that affective diversity may have different effects depending on the affective intensity under consideration (Barsade et al., 2000). Especially with respect to negative affect there seems to exist a certain level of intensity that, once surpassed, makes it very difficult for the interactants to induce a change in the affective climate for the positive (Maitlis & Ozcelik, 2004; Morrison & Robinson, 1997; Staw, Sandelands, & Dutton, 1981). Maitlis and Ozcelik (2004) further elaborate on this issue by discussing the concept of a toxic decision process. They explain that an affectively negative climate results from the recursive interchange of certain behaviors and affective expressions over three distinguishable phases. These phases describe that once destructive behaviors and emotions are introduced, they deteriorate and escalate, and ultimately result in the containment and conservation of negative affect. This further implicates that the interactants may try to influence the affective climate purposefully, in particular to ameliorate an affectively negative climate, which may, however, also lead to a further deterioration of the affective climate after all (Maitlis & Ozcelik, 2004).

In sum, by interacting with each other, negotiators establish a shared social and affective climate or context, which serves them as additional information, for example, about the state of their relationship, or the appropriateness of expressing certain types of affect (Adelmann & Zajonc, 1989; Barsade, 2002; Bartel & Saavedra, 2000; Frijda, 1988). The perception of this collectively shared information and the subsequent affective behaviors are further believed to reinforce or alter the evoked affective reality, which may in turn again influence individual affective behaviors (Barsade et al., 2000; Gump & Kulik, 1997; Totterdell, 2000). Research addressing affect at the collective level largely examined emotions within and between groups by drawing inferences from emotions at the group means (Barsade et al., 2000; Bartel & Saavedra, 2000; George, 1990; Kelly & Barsade, 2001; Totterdell et al., 1998). These studies generally found that the average emotional climate is related to the individual emotions of the interactants (e.g., Ilies et al., 2007; Totterdell, 2000). There is, however, supplementary evidence that shared contextual characteristics in general and a shared affective climate in particular, do not necessarily predispose an affective influence at the intra-personal or inter-personal level (Coyne, 1976; Gump & Kulik, 1997; Joiner, JR., 1994; Totterdell, 2000). Overall, it can, however, be expected that intra-personal and inter-personal effects of affective behaviors are linked and contribute to a shared or collective affective climate. This theoretical assumption is further important on a methodological level, which means that intra-personal and inter-personal effects of affective behaviors should not be analyzed in isolation from each other. This issue is picked up again and elaborated further in Chapter D.6, which introduces and outlines one appropriate method for dealing with this issue.

B.2.4. Procedural Dynamics

The necessity to incorporate procedural dynamics (i.e., the continuous evolvement and change over time) for the analysis of affective behaviors and expressions in negotiations is generally explained by the social character of negotiations. Since affective expressions arise out of the continuous interactions of the negotiators, they are subject to ongoing changes and exhibit an evolutionary process of evolvement (Butt et al., 2005, Van Kleef et al., 2004a, 2004b). Accordingly, negotiations in general and affective expressions evolving therein in particular, should be judged as dynamically evolving processes rather than static elements (cf. Ilies et al., 2007; Kenny, 1996b). Thus, characterizing negotiations and affect in terms of procedural dynamics embraces their social nature and accommodates their procedural and evolving aspects, whereas a static perspective would wrongly assume stability and consistency over time (Kenny, 1996b). Such a temporal perspective of affective behaviors correspondingly allows us to uncover procedural dynamics, patterns of change, and episodes of stability with respect to effects that originate from the intra-personal and inter-personal levels of affective behaviors. That such procedural dynamics shape the negotiation process is also explained by traditional negotiation research, which points out that negotiators usually do not stick with one dominant strategy (e.g., Pruitt & Lewis, 1975) but, for example, alternate between distributive and integrative strategies (e.g., Putnam, 1990). These mixed strategy approaches highlight that negotiation behaviors generally vary over time because negotiators adapt to changes of all kinds of environmental factors throughout the negotiation process (Barry & Oliver, 1996; Olekalns et al., 2003; Pesendorfer, Graf, & Koeszegi, 2007; Weingart & Olekalns, 2004). In particular, the displayed behaviors at a given point in time are argued to depend on an individual's strategic orientation, as either distributive or integrative, and the strategic function, that is, information exchange or action, associated with it (Olekalns et al., 2003; Weingart & Olekalns, 2004). Whenever a negotiator's evaluation of these behavioral characteristics changes, his or her behaviors may also change, which includes potential changes in affective behaviors.

Hence, the procedural dynamics that characterize a negotiation process arise out of the interactions of the negotiators and the adaptation and counter-adaptation of their behaviors (Koeszegi, Pesendorfer, & Vetschera, 2011; Morris & Keltner, 2000; Taylor, 2002a; Weingart & Olekalns, 2004). This process of mutual adaptation may further synchronize or desynchronize the individual behaviors of negotiators over time (Olekalns & Weingart, 2008), which is why the procedural dynamics of the negotiation process are related to the behavioral dynamics between the negotiators within the negotiation process (Donohue & Roberto, 1993; Taylor, 2002a). Since communication lies at the heart of these dynamics (Olekalns, 2002; Putnam & Jones, 1982), we can analyze the procedural and behavioral dynamics by exploring communication behaviors (Holmes, 1992; Koeszegi & Vetschera, 2010), and the communicative patterns that emerge (Taylor, 2002a). Doing so, for example, allows one to draw conclusions about the state of negotiation progress or the relational quality at a certain point in time (Prietula & Weingart, 2006). Accordingly, it is argued that communication content and intensity will vary over the negotiation life-cycle (Hine et al., 2009; Taylor, 2002a). This is, for example, shown by Taylor and Thomas (2008) who found that failed and successful negotiations differ by language patterns. Their research complements related studies, which found that general strategic and relational behaviors systematically change throughout the negotiation process (Adair & Brett, 2005; Olekalns et al., 2003), by showing that also linguistic patterns are subject to systematic variations (Taylor & Thomas, 2008). These findings provide important insight for the study of affect in text-based communication as expressions of affect and a change thereof is reflected by written language. Other research similarly confirms that the perceived intensity of behaviors and language relate to affective expressions in the negotiation process (Donohue, 1981, 2001; Rogan & Hammer, 1995) as well as to changes of affective expressions over time (Filipowicz, Barsade, & Melwani, 2011). Consequently, it is proposed not to oversimplify the dynamic complexity of negotiations by analyzing them as one stable construct, but rather to investigate the procedural patterns over the time span of a negotiation encounter (Weingart & Olekalns, 2004). One recommended approach to do so involves the analysis of negotiation phases (Holmes, 1992; Weigand, De Moor, Schoop, & Dignum, 2003).

B.2.4.a. Phase Modeling

In general, a negotiation phase denotes "a coherent period of interaction, characterized by a dominant constellation of communicative acts" (Holmes, 1992: 83). Consequently, it is argued that negotiations can be split into a number of distinct and internally coherent intervals. The underlying assumption is that negotiations unfold and evolve over time and that the related procedural dynamics are reflected in a sequence of distinct and consecutive phases (Douglas, 1962; Druckman, 1986; Holmes, 1992). Since these distinct phases relate to different states of the negotiation process, they describe different clusters of behaviors and, at least partly, prescribe what ought to happen and what can be considered as appropriate or inappropriate behavior (Druckman, 1986; Morris & Keltner, 2000). Viewing the negotiation process in terms of phases moreover allows us to investigate procedural changes by examining the transitions form one phase to another and the related temporal sequences that are enacted by behaviors within and between specific phases (Filipowicz et al., 2011; Morris & Keltner, 2000). Hence, phase modeling helps us to depict and explain the natural flow of behaviors and communications that drive the negotiation process from the beginning to its end (Barry & Oliver, 1996; Olekalns, 2002; Weingart & Olekalns, 2004), or as others put it, to generate "a map of social interaction" (Koeszegi & Vetschera, 2010: 128). Based on these insights it is further possible to relate different procedural patterns to different negotiation outcomes (Taylor, 2002b; Weingart & Olekalns, 2004).

Although phase analysis starts to be more widely applied, research addressing the negotiation process in terms of distinct phases is still limited (Adair & Brett, 2005; Brett, Weingart, & Olekalns, 2004; Holmes, 1997; Lytle, Brett, & Shapiro, 1999; Olekalns et al., 2003; Weingart & Olekalns, 2004). One explanation for this shortcoming is the continuation of traditional negotiation research, which concentrates on the input and output side of negotiations, but excludes the process in between (Holmes, 1992). As noted by Holmes (1992) and Olekalns, Brett, and Weingart (2003), most research that intends to address the negotiation process limits itself to the analysis of frequencies or categorical ratios of behaviors with respect to the entire negotiation and thus disregards the procedural evolvement of the negotiation process over time. Literature generally provides different phase models, which are distinguished by length, that is, the number of phases, and by their either prescriptive or descriptive nature (Holmes, 1992). With respect to length, most phase models of negotiations are based on three phases or can be boiled down to three core phases (i.e., initiation, problem solving, and resolution), which shows consensus for a three phase model in the case of negotiations (Holmes, 1992; Putnam, 1990; Taylor & Thomas, 2008). As explained by Holmes (1992) prescriptive phase models, like the name suggests, aim at prescribing or predicting what will or should happen in which phase (Atkinson, 1980; Carlisle & Leary, 1981; Donohue, Kaufmann, Smith, & Ramesh, 1991). Importantly, this information is collected from individual negotiators, which means that prescriptive phase models are focused on one negotiator and his or her behaviors only, and disregard the interaction and interdependence between the negotiators. Put differently, these models concentrate on the individual decision making process rather than the negotiation process. Descriptive phase models do not focus on guiding individual negotiators, but describe the evolvement and change of the overall negotiation process based on the events and behaviors evoked by the negotiators in interaction (Holmes, 1992). “The classical” descriptive phase model is a three-phase model provided by Douglas (1962), upon which most other phase models are based (e.g., Abbott, 1986; Gulliver, 1979; Pruitt, 1981; Putnam, Wilson, & Turner, 1990; Walton & McKersie, 1965). Her phases are denominated as establishing the negotiation range, reconnoitering the range, and precipitating the decision-reaching crises, which can, as indicated before, be summarized as initiation, problem solving, and resolution phases.

Based on these traditional phase models of negotiations, more recent models were developed (Adair & Brett, 2005; Broekens et al., 2010; Morris & Keltner, 2000). Morris and Keltner (2000) propose a four-phase model that differentiates opening moves, positioning, problem solving, and endgame. Their model is one of the very few that explicitly focuses on emotions by explaining that specific relational problems arising in each of the negotiation phases can be resolved with specific emotional behaviors. Consequently, it is argued that negotiation progress, in terms of moving from one phase to the next, depends on the expressions of certain kinds of emotions at certain points in time as well as the inter-personal effects of these emotions. Adair and Brett (2005) propose a similar four-phase model of negotiations that includes relational positioning, identifying the problem, generating solutions, and reaching agreement phases. Their phases are described by general competitive and cooperative behaviors of the negotiators, whereas a move from one phase to the next indicates a shift or change of these behaviors. Broekens, Jonker, and Meyer (2010) propose a four-phase model, which includes the phases of private preparation, joint exploration, bidding, and closing. In their model, however, the first phase is a pre-negotiation phase, whereas in the previous two models (Adair & Brett, 2005; Morris & Keltner, 2000) the first phase already pertains to the negotiation process. Hence, this model is more closely oriented at the traditional three-phase models originating from Douglas (1962), with the addition of a pre-negotiation planning phase.

Although the here presented summary of more recent phase models of negotiations is not complete, the models discussed above can be considered to be representative for most of them. Also, it might seem that contemporary phase models agree on a revision of the traditional three-phase structure, which was proposed by earlier literature. However, these recently developed four-phase models do not entirely agree on the definition of these phases and ascribe differing behaviors and events to each of these phases. Additionally, it is argued that phases may overlap to a certain extent. Moreover, a closer investigation of these four-phase models reveals that the outlined phases can be boiled down to reflect traditional three-phase models. Thus, although it might appear that the answer to the question of how many phases are appropriate to characterize the negotiation process was revised, research still indicates to stick with the previous answer of three phases. This position is further strengthened by the argument that the negotiation process should rather be described by fewer phases, since "the potential range of behaviors within each phase is considerably wider [in negotiations] than in decision making" (Koeszegi et al., 2011: 390). In line with this argument others rely on even fewer phases and describe the negotiation process by using a two-phase model (Pesendorfer et al., 2007). This can, however, again be criticized as being too simplistic and too closely oriented at a perspective of negotiations as a static rather than dynamic process. Consequently, the most appropriate characterization of the negotiation process seems to follow a three-phase structure, as indicated by traditional literature on phase modeling as well as by the discrepancies found in different, more recent phase models of negotiations. In addition, negotiation research based on phase modeling consensually agrees that negotiations are characterized by mixed motives and behaviors over time, but also that research efforts should be intensified in this area to gain a more profound understanding of the dynamics that shape the negotiation process (Weingart & Olekalns, 2004).

B.2.4.a.1. Toward an Understanding of Procedural Dynamics of Negotiations

Once it is clear how phase models can help us to investigate procedural dynamics of negotiations in general, we can turn our attention to specific elements in the negotiation process that reward our attention. In particular, it is argued that the analysis of the negotiation process can be approached by analyzing strategic acts (or frequencies), sequences, or phases of behaviors and communications (Brett et al., 2004; Weingart & Olekalns, 2004). With respect to these aspects the predominant focus of literature, however, is to select between these rather than to consider their holistic character on a joint basis. We argue that the analysis of strategic acts and sequences, first of all, is interdependent and moreover needs to be considered within a phase structure to capture negotiation-wide dynamics. Thus, we will further elaborate on these issues from a dynamic perspective in order to be able to conclude which behavioral, and in particular affective, acts and sequences can be expected to define the negotiation phases and hence the evolution of the negotiation process.

B.2.4.a.2. Affective Expressions as Strategic Acts in the Negotiation Process

Strategic acts refer to the strategies and tactics that are used in negotiations and can be generalized to all sorts of behaviors (Brett et al., 2004; Weingart & Olekalns, 2004), including affective behaviors or expressions. Traditionally, these are captured by studying frequencies (Weingart & Olekalns, 2004), which is why some negotiation researchers equalize the study of strategic acts and frequencies. A large number of studies interested in strategic acts examined their effects on outcomes and showed that, in general, integrative behaviors improve outcomes whereas distributive behaviors result in the opposite (Hyder, Prietula, & Weingart, 2000; Pruitt & Lewis, 1975; Putnam & Jones, 1982). As noted by Weingart and Olekalns (2004) these findings, however, need to be relativized with respect to the sharing of information as it was, for example, found that information sharing cannot simply be classified as integrative behavior. In particular, revealing preferences or positions is closely related to distributive behaviors whereas revealing priorities is related to integrative behaviors (Olekalns, Smith, & Walsh, 1996; Weingart, Hyder, & Prietula, 1996). Also, it was shown that a mixed use of integrative and distributive behaviors, as well as different kinds of these behaviors, influence outcomes differently (Olekalns & Smith, 2000). Such studies, which investigate the impact of procedural characteristics of the negotiation process on the outcome, are complemented by studies that investigate the impact of input factors on these procedural characteristics. Here, it was for example proposed that an induction of integrative or distribute behaviors would result in the subsequent predominant use of similar behaviors in a negotiation (Hyder et al., 2000; Weingart et al., 1996). Empirical evidence, however, disconfirms this assumption, in particular with respect to distributive behaviors (Weingart et al., 1996). Relatedly, framing negotiations in terms of gains or losses was shown to induce negotiators to behave more cooperative or competitive, respectively (De Dreu et al., 1994).

Overall, the study of strategic acts hints at two important and related issues with respect to the negotiation process. First, the provision of information and the way it is perceived and interpreted by the opponent is a central driving force for the negotiators' behaviors (Olekalns et al., 2003; Olekalns & Smith, 2003; Weingart & Olekalns, 2004). Second, since different information strategies and behaviors vary in their frequencies of occurrence (Brett et al., 2004; Olekalns et al., 2003; Weingart & Olekalns, 2004), it can be inferred that negotiators are likely to change and adapt their behaviors throughout the negotiation process (Olekalns et al., 2003; Olekalns et al., 1996). Consequently, it was also argued that the mixed behaviors of negotiators may not converge to distinct homogeneous phases (Putnam, 1990). Phase models, however, do not presume completely homogeneous intra-phase behaviors, but assume that certain kinds of behaviors are dominant in different phases and that the focus on these behaviors shifts over time (Adair & Brett, 2005; Putnam, 1990). Thus, it is the patterns of change of predominant behaviors that define the path or life-cycle of a negotiation process (Olekalns & Smith, 2000; Putnam, 1990), as well as whether a negotiation is heading toward success or failure (Adair & Brett, 2005; Douglas, 1962; Olekalns et al., 1996; Pruitt, 1981). That this assumption is reasonable is further explained by the multiplicity of potential behaviors that may describe a negotiation phase, also to different extents. In this respect, besides cooperative and competitive behaviors in general, it can be expected that behaviors focused on relationships building (Adair & Brett, 2005; Olekalns & Smith, 2000), power (Adair & Brett, 2005), or task management (Olekalns & Smith, 2000) define the negotiation process. Moreover, similar behaviors may have different underlying reasons or effects in different phases (Olekalns et al., 1996). These issues again highlight the mixed-motive nature of negotiations (Walton & McKersie, 1965) and allow to conclude that the behavioral volatility in negotiations warrants more attention (Adair & Brett, 2005; Putnam, 1990).

Somewhat more pronounced investigations of strategic acts within the negotiation process distinguish between earlier (i.e., the first half) and later (i.e., the second half) negotiation phases. Here research, for example, argues that the first half of negotiations is characterized by more distributive (Brett et al., 2004) and competitive (Adair & Brett, 2005) behaviors, also in computer-mediated negotiations (Pesendorfer et al., 2007). These behaviors are, however, additionally complemented by integrative information strategies, because negotiators need information to act upon (Olekalns et al., 2003). The second half of negotiations is argued to be more integrative (Brett et al., 2004) and cooperative (Adair & Brett, 2005), because negotiators are assumed to have developed a shared perspective based on the exchanges of offers and social information in the previous half of the negotiation (Hine et al., 2009), which was again found for computer-mediated negotiations (Pesendorfer et al., 2007). Moreover, task management (Olekalns & Smith, 2000), issue focused discussions (Hine et al., 2009), but also distributive behaviors (Brett et al., 2004) characterize the second half of negotiations.

In sum, pursuing the analysis of strategic acts on a negotiation wide level, or breaking it down to two negotiation halves, allows us to gain some initial insight into the negotiation process. However, these less pronounced perspectives provide us with mixed results or make it difficult to disentangle certain behaviors and effects thereof, such as the duality of integrative and distributive behaviors in the second half of negotiations. Thus, it can be assumed that a more detailed analysis of the negotiation process will unmask certain effects that would remain hidden otherwise. Accordingly, we propose to use a more fine-grained three-phase model and subsequently describe each of the phases in more detail.

B.2.4.a.2.1. Phase 1: Initiation

From the start negotiations are characterized by limited information and uncertainties, which is why the search for information and monitoring the opponent's behaviors are very relevant goals in the first negotiation phase (Druckman, 1986). Furthermore, the opening moves are used for initial coordination (Druckman, 1986; Morris & Keltner, 2000) and may reveal a negotiator's strategic orientation (Olekalns et al., 2003). Although the first phase may be predominantly characterized by distributive or integrative behaviors, it is more likely to be of distributive nature (Lytle et al., 1999; Olekalns et al., 1996), because initial integrative behaviors would signal submissiveness and weakness (Olekalns et al., 2003). Also, negotiators normatively expect initial positioning to be part of the negotiation game (O'Connor & Adams, 1999; Olekalns et al., 2003). Olekalns, Brett, and Weingart (2003) for example found that negotiators who initiated a negotiation with integrative behaviors fared worse than negotiators who started off with distributive behaviors, and that the first group was trapped in a negative cycle of reciprocity once distributive behavior was initiated. One conclusion of these findings is that integrative opening moves are used by rather inexperienced negotiators who do not manage to establish an initial constructive atmosphere. If, however, distributive behaviors are used early, negotiators belief to be treated in a fair manner and not to be exploited, which makes it easier for constructive discussions to emerge. Initial distributive behaviors also help in specifying an agenda and the negotiable issues (Putnam, 1990). Moreover, it is argued that particularly emotions of liking and interest are expressed in this first phase (Morris & Keltner, 2000). These positive emotions are important to establish a favorable first impression, to signal one's interest in the negotiation and the opponent, and to indicate one's potential willingness to engage in more integrative behaviors once the negotiation progresses (Broekens et al., 2010). In addition, such emotions help to "break the ice and establish forward momentum" (Morris & Keltner, 2000: 25), and thus assist unacquainted negotiators to exchange information and initiate relational development. Also note that positively valenced affect and distributive opening moves are not at odds, but rather complement each other in the first negotiation phase. Confirmation for this assumption is provided by research arguing (Lytle et al., 1999) and showing (McGinn & Keros, 2002) that competitive behaviors and relational development go hand in hand at the beginning of a negotiation, as negotiators need to start sharing information but at the same time need to signal some toughness and reservation in order not to be taken advantage of (Adair & Brett, 2005). Adair and Brett (2005) further note that negotiators yet only start to share information in this initial phase and cannot fully base their decisions on already exchanged information, since the opponents still need to gain a better understanding of each others' interests and positions. Thus, negotiators largely rely on positioning statements and affective information to establish their relationship and decide on their subsequent behaviors and actions (Adair & Brett, 2005; Broekens et al., 2010). Consequently, expressions of negatively valenced affect, such as anger, are limited in this phase, as this would induce a destructive climate from the start (Broekens et al., 2010). Once the negotiators, however, perceive that they are not moving any further, expressions of negative affect are expected to increase, in line with a more thorough shift of attention to the negotiated issues and a related increase in information exchange (Adair & Brett, 2005; Lytle et al., 1999). These behaviors further mark the transition from the first to the second negotiation phase.

B.2.4.a.2.2. Phase 2: Problem Solving

In general, the second phase is characterized by more conflicting behaviors and negative emotions than the previous phase (Putnam, 1990). Also negotiators are expected to engage in persuasive bargaining, logrolling, concession making, and thus start to narrow down their differences (Druckman, 1986). Accordingly, once the negotiators are familiar and comfortable with each other, contentious behaviors will arise (Morris & Keltner, 2000), demands, rejections, and counter-offers will be used more frequently, and positions may harden or will be defended more vigorously (Putnam, 1990). Consequently, negotiators behave competitively but will also need to show some cooperative behaviors in order to move forward (Adair & Brett, 2005; Olekalns et al., 1996). Thus, the second phase is largely shaped by instances of value creation to "enlarge the pie", but also by instances of value claiming to "divide the pie", and by efforts to balance these two (Adair & Brett, 2005; Broekens et al., 2010; Morris & Keltner, 2000). This further results in more fact- or information-based competitive and distributive behaviors, which, however, also leads to tensions and more energetic and power driven communications (Adair & Brett, 2005). All of these issues further induce expressions of negatively valenced affect, such as anger and contempt (Morris & Keltner, 2000). Anger may, for example, be communicated to emphasize one's position, to signal disagreement, to influence the opponent's behavior in a desired way, or to blame and attack (Adler et al., 1998; Keltner et al., 1993). Also, expressions of anger can increase one's risk tolerance (Lerner & Keltner, 2000, 2001) and may thus impact the process of creating and claiming value. Importantly, anger can also be productive and help a negotiator to claim value and induce an opponent to make concessions (Broekens et al., 2010). Such a positive effect of anger may be likely if the negotiation process and the behavior of the opponent is perceived as just or fair. This may in turn have a positive impact on the interaction process and increase the share of cooperative and integrative behaviors. As a consequence the negotiators will display more problem solving behaviors as well as positively valenced affect (Putnam, 1990). These changes to the better also mark the end of the second and the beginning of the third negotiation phase.

B.2.4.a.2.3. Phase 3: Resolution

The third and final negotiation phase is characterized by cooperative and integrative behaviors of the negotiators and is aimed at problem resolution and thus negotiation conclusion (Morris & Keltner, 2000; Pruitt & Rubin, 1986; Putnam, 1990). Here concessions are made on the remaining open issues, final offers and counter-offers are exchanged, and the zone of possible agreements is narrowed down to acceptable alternatives (Adair & Brett, 2004; Putnam, 1990). Also, it is argued that the search for an agreement and the willingness to give in on some issues is promoted by approaching deadlines (Moore, 2004; Olekalns et al., 1996). Moreover, the exchange of fact-based information and arguments wanes, as the negotiators employed these persuasion techniques excessively in the previous phase (Adair & Brett, 2005). Consequently, the interactants try to assert some final influence on each other by managing their relationship, referring to long-term benefits, but also by engaging in more open, constructive, cooperative, and creative discussions (Broekens et al., 2010; Morris & Keltner, 2000). Expressions of affect and the addressing of concerns in an affective manner further are important complements to these activities and behaviors (Morris & Keltner, 2000). Morris and Keltner (2000), for example, explain that emotions of embarrassment can be used to apologize, and emotions of pain and exasperation can induce commitment, concessions, help to refocus attention, or resolve standing problems. Hence, expressing these or similar emotions may signal in a trustworthy manner that one reached out as far as possible and could be interpreted as a sort of soft threat (Morris & Keltner, 2000). In addition negotiators strive for outcome and procedural satisfaction (Broekens et al., 2010), which influences and induces expressions of positively valenced affect in the final negotiation phase.

Importantly, the discussed three-phase model refers to procedural elements that shape successful negotiations. Hardly any theoretical or empirical literature, however, deals with the dynamics of failed negotiations. Thus, whether and to what extent the explained intra-phase behaviors deviate in the case of failed negotiations is mostly speculative, which is why one aim of the present research is to investigate the procedural differences between failed and successful negotiations. Nevertheless, failed negotiations can generally be expected to be characterized by more distributive, competitive, and affectively negative behaviors in the final negotiation phase (Taylor, 2002b). Also, failing to establish a constructive climate and relationship in earlier phases may contribute to a potential negotiation breakdown (Putnam et al., 1990; Simons, 1993; Taylor, 2002b).

B.2.4.a.3. Affective Expressions as Strategic Sequences in the Negotiation Process

Up to now we discussed the procedural aspects of strategic acts or frequencies, that is, what kinds of behaviors emerge to what extent, which, however, is only one angle to investigate negotiation wide dynamics (Brett et al., 2004). Another angle of investigation directs our attention at sequences of behaviors. These allow us to examine the stability or change of behaviors over time (Brett et al., 2004; Weingart & Olekalns, 2004), at the intra- and inter-personal levels discussed in previous chapters. Importantly though, these previously described intra- and inter-personal sequences of, for example, matching or mismatching, may change over time and can have different effects in different negotiation phases. Investigating sequential procedural dynamics of behaviors thus provides insights with respect to the synchrony or smoothness of behaviors and communication acts over time (Chartrand & Bargh, 1999; Druckman, 1986; Taylor & Thomas, 2008). Overall, the synchronization of behaviors is related to issues of coordination, which was found to be important for the successful conclusion of a negotiation (Putnam et al., 1990), however, to different extents in different negotiation phases (Taylor & Thomas, 2008). A lack of synchrony moreover implies negotiation difficulties or lower flexibility, and may hinder the progression of a negotiation to later negotiation phases (Druckman, 1986; Lytle et al., 1999). Indisputably, synchronous sequences may also have opposing effects, for example, in the case of negative emotions inducing a negative cycle of reciprocity.

Nevertheless, it is too simplistic to generally state that synchronous sequences of positive behaviors are more beneficial than negative synchrony. As already stated in previous sections, most negotiations involve mixed behaviors that include instances of cooperation as well as competition, which implicates that only synchronous sequences of behaviors may be unlikely or not beneficial in negotiations (Lytle et al., 1999; Olekalns & Smith, 2000; Olekalns et al., 1996; Taylor, 2002b; Weingart & Olekalns, 2004). Indeed Weingart and Olekalns (2004) highlight that failed negotiations do not differ from successful negotiations in terms of sequences of integrative synchrony, whereas others show that positively synchronous behaviors toward the end of a negotiation makes reaching an agreement more likely (Olekalns & Smith, 2000; Taylor, 2002b). Also, it is argued that distributive synchrony makes a difference (Weingart & Olekalns, 2004), which is in line with other research showing that increased distributive behaviors promote distributive outcomes (Brett et al., 1998). While all negotiations may at least be partly shaped by distributive sequences, negotiation success and efficient outcomes seem to be related to specific forms and progressions of distributive synchrony (Olekalns & Smith, 2000; Weingart & Olekalns, 2004). In particular, if sequences of distributive behaviors take place in an integrative climate, negotiators interpret these in a more constructive manner and use this information to reach more beneficial outcomes (Olekalns & Smith, 2000). According to Weingart and Olekalns (2004), such findings show that distributive and integrative contexts are equally likely to promote behavioral synchrony (Olekalns & Smith, 1999; Weingart, Bennett, & Brett, 1993), but also that the effects of these sequences are context dependent. Distributive contexts support a preservation of and turn to more competitive and negative behaviors, while integrative contexts stimulate more cooperative and positive behaviors. In addition, sequences of positive behaviors are believed to be more fragile, whereas sequences of negative behaviors are more stable and thus more difficult to escape from (Brett et al., 1998; Weingart & Olekalns, 2004).

In more detail, cooperative contexts are driven by reciprocal sequences of process management and reciprocal as well as complementary sequences of integrative behaviors (Olekalns & Smith, 2003; Weingart & Olekalns, 2004). Competitive contexts are characterized by a lack of these but also by reciprocal sequences of distributive communications and offers (Weingart & Olekalns, 2004). Importantly, both contextual situations are found in successful and failed negotiations. In successful negotiations, however, behavioral sequences that are focused on value claiming wane over time, whereas behavioral sequences that are focused on value creation gain momentum over time (Adair & Brett, 2005; Brett et al., 2004). Failed negotiations, to the contrary, are characterized by more sequences of distributive value claiming toward the end (Taylor, 2002b). These conclusions generally conform with what we know from the study of frequencies, namely that more integrative and cooperative behaviors may lead to better outcomes. In addition, the study of sequences provides a more elaborate explanation on why and when this is the case (Brett et al., 2004; Weingart & Olekalns, 2004). To address the latter point, when which kind of sequence has which specific effect, we need to understand why and when a sequence of behaviors may induce a shift from one negotiation phase to the next, as well as why and when this may not be the case. In other words, we are looking at behavioral transitions in terms of strategic redirections (Olekalns et al., 2003). Here the main assumption is that distinct negotiation phases are defined by different sequences of behaviors and/or different effects of these. Put differently, phases may differ due to sequences, the effects of these, or both. With respect to the functions of emotional sequences, some general insights can be deducted from a study by Taylor and Thomas (2008) who investigated differences in linguistic style matching between failed and successful negotiations. They found higher levels of linguistic style matching for successful negotiations and more radical changes of linguistic styles for failed negotiations. The predominant matching of communications in successful negotiations implies a higher degree of coordination and affective synchrony over time, whereas the predominant fluctuation of communications in failed negotiations implies behavioral and affective disagreements, which may culminate in a negative cycle of reciprocity. Building on these initial insights, we can develop a more pronounced understanding of behavioral sequences and particularly sequences of affective expressions within and throughout the negotiation process, by further elaborating on these issues in line with the previously introduced three-phase model.

B.2.4.a.3.1. Phase 1: Initiation

It is suggested that the first negotiation phase is largely defined by sequences of competitive behaviors and communications (Bednar & Curington, 1983; Putnam, 1990), but also by mutual efforts to develop some common ground and establish initial trust and rapport (Adair & Brett, 2005; Taylor, 2002a; Taylor & Thomas, 2008). As similarly pointed out in the section discussing strategic acts in this initial negotiation phase, these seemingly contrasting behavioral sequences are not at odds but rather complement each other. On the one hand negotiators need to share information and show some trusting behavior to get the negotiation process started, and on the other hand negotiators need to show that they are not too easy to get, by starting off in a competitive manner. These behaviors are believed to be reciprocated and hence describe sequences of synchronous behaviors. The main reason for this effect is the driving force of the norm of reciprocity (Gouldner, 1960) in negotiations, which is further considered to be particularly influential at the outset of a negotiation encounter (Olekalns et al., 2003; Weingart et al., 1999). Behavioral sequences are furthermore reflected and supported by affective expressions, which serve as additional signals and information for the negotiators. In particular, “reciprocal sequences of affective persuasion” (Adair & Brett, 2005: 36) accompany behavioral sequences of initial positioning and posturing, and hence behaviors of competition and relational development. Sequences of affective persuasion are thus used to communicate one’s stance and position to the opponent and serve him or her as input for subsequent expressions of affect. Consequently, the first negotiation phase is described by sequences of affective persuasion and counter-persuasion and hence by the reciprocation of affective expressions of a certain kind. With respect to the type of affect that is being reciprocated it is argued that initial expressions of affect, just as the resulting affective sequences, are of neutral nature, because non-neutral affective expressions may contaminate the negotiation process already right from the start (Broekens et al., 2010). Indeed, if negotiators start off too competitive and with too negative expressions of affect they may be stuck in a first negotiation phase governed by negativity (Morris & Keltner, 2000). However, rather than being characterized by neutral affect, Morris and Keltner (2000) argue that the first negotiation phase is shaped by affectively positive sequences of reciprocity. In particular, affective expressions of interest and liking are central to initial sequences of affective persuasion, since they provide information, induce others to reveal information, help with initial relational development, and induce reciprocity (Morris & Keltner, 2000). Thus, initial affective sequences of interest and liking help negotiators to get the negotiation started, and to get and share some initial insights about the negotiation problem and the negotiable issues. At the same time they support propositions of initial competitive offers by making those appear in a more favorable or positive light. Put differently, affective sequences of interest and liking “lubricate and set in motion the process of negotiation” (Morris & Keltner, 2000: 27).

B.2.4.a.3.2. Phase 2: Problem Solving

Whereas affective sequences help to share information and establish rapport in the first negotiation phase, they have different functions in the second negotiation phase. In phase two it is assumed that negotiators have acquired enough information in order to start searching for potential zones of agreement (Olekalns & Smith, 2000). In particular, negotiators are expected to put more emphasis on making offers and counter-offers as well as on claiming value by rationalizing with their opponent (Adair & Brett, 2005; Olekalns & Smith, 2000). Hence, we observe a partial shift from affective to rational persuasion and thus to behavioral sequences of spirited conflict (Adair & Brett, 2005). Consequently, the second phase is more strongly driven by competitive behaviors that are aimed at claiming more value for oneself, which also indicates that the interaction process will be defined by more negative expressions of affect (Adair & Brett, 2005; Morris & Keltner, 2000). Together with instances of value claiming, negatively valenced affect signals the importance of certain issues or potential possibilities for trade-offs (Adair & Brett, 2005). Accordingly, Adair and Brett (2005) highlight that the second negotiation phase is largely governed by structural sequences. With respect to affective expressions this means that offers or rational arguments are answered with certain expressions of affect, or to the contrary that affective expressions can induce certain offers or rational justifications. Here in particular affective expressions of anger or contempt are believed to play an important role (Morris & Keltner, 2000). Anger signals involvement and shows which issues or values on those are important to a negotiator, and may induce the opponent to reciprocate anger and use it in a similar fashion. Also anger may provoke concessions from the negotiation partner, but can also evoke a more competitive and affectively negative climate. Emotions of contempt are comparable to those of anger but are more person-focused and hence are used to address the relationship between the negotiators rather than the offers that are being made. Overall, the second negotiation phase is characterized by structural sequences that include expressions of negatively valenced affect, which serve as important signals and thereby impact the progression of the negotiation. As pointed out by Morris and Keltner (2000), this phase of spirited conflict is critical for negotiation success, since the expressions of negative affect in this phase may drive the negotiation process in either one of two directions. On the one hand, expressions of negative affect may have a detrimental effect and can induce a negative cycle of reciprocity, particularly if the signaling functions of these affective expressions are not understood or employed in an appropriate manner by the interactants. On the other hand, negatively valenced affect may help the negotiators to solve certain negotiation problems and path the way for the discovery of mutually beneficial solutions. In the first case the outlined structural sequences should fade into sequences of negative affective reciprocity. In the second case the outlined structural sequences should, however, induce different sequences of behaviors and affective communications, which are expected to be of positive nature. These resulting behaviors and affective expressions mark the beginning of the third negotiation phase.

B.2.4.a.3.3. Phase 3: Resolution

It is argued that the last negotiation phase is defined by structural sequences similar to those in phase two, with the difference being that this phase is characterized less by fact-based communication content and more by higher degrees of communication intensity (Adair & Brett, 2005). Other researchers draw similar conclusions with respect to communication intensity, but argue in favor of more affectively positive sequences of reciprocity (Bernieri et al., 1988; Morris & Keltner, 2000). Moreover, researchers mostly agree that the driving forces of the final negotiation phase are social and relational aspects (Broekens et al., 2010; Morris & Keltner, 2000), since positioning and rational argumentation were already used extensively in the previous negotiation phase (Morris & Keltner, 2000). Thus, it is expected that negotiators use and reciprocate affective expressions to strengthen and improve their relationship and to establish higher levels of trust in order to get a better and more satisfactory deal (Broekens et al., 2010; Morris & Keltner, 2000). Specific emotions that are being used and reciprocated in this phase are for example emotions of empathy (Morris & Keltner, 2000). Furthermore, Morris and Keltner (2000) point out that negotiators may use emotions of embarrassment in structural or complementary sequences, since these kinds of emotions can serve as gestures of apology, can help to strengthen rapport and trust, or can induce expressions of sympathy by the opponent. Overall, the final negotiation phase is shaped by sequences that include positively valenced affect, which promote cooperation, the development of a positive climate, and favor successful negotiation resolution.

These insights and final conclusions, however, mostly describe the case of successful negotiations, if not mentioned otherwise. Failed negotiations are more difficult to describe since, as previously pointed out, research is limited in this area. Nevertheless, it can be expected that behavioral and affective sequences differ in at least the third negotiation phase, as well as to some extent also in the second negotiation phase. Such a potential difference in phase 2 was already discussed above. In addition, the final phase in failed negotiations is believed to contrast that in successful negotiations. In particular phase 3 in failed negotiations is assumed to be of distributive nature (Olekalns & Smith, 2000; Putnam, 1990; Taylor, 2002b) and could be considered as prolongation of the second phase, also in terms of sequences of negatively valenced expressions of affect. However, since negotiators in failed negotiations enter a negative cycle of reciprocity in phase 2, it is likely for expressions of affect to further deteriorate and escalate in phase 3.

B.2.4.a.4. The Bottom Line

To sum up, phase analysis helps us to incorporate a temporal level into the analysis of negotiations (and hence to incorporate procedural dynamics) by splitting the negotiation process into distinct and consecutive phases that differ in terms of their strategic orientation. Importantly, these distinct phases describe different individual behaviors and affective expressions as well as inter-personal behavioral and affective sequences, which are responsible for the evolvement of the negotiation process. Consequently, negotiation processes are characterized by periods of behavioral and affective synchrony but also moved forward by periods of behavioral and affective transitions. Hence, it is to be expected that negotiations twist and turn, also because they are influenced by changing affective behaviors and do not simply follow strictly rational reasoning (Brett et al., 2004).

B.2.5. An Integrated View on the Behavioral Dynamics of Affect in Negotiations

As outlined in the previous chapters, the behavioral dynamics of affect need to be understood in terms of behavioral as well as procedural dynamics. Chapter B.2 made the case for the importance of considering behavioral and procedural dynamics on a joint basis, and the subsequent chapters further provided the theoretical foundation for these dynamics. The purpose of the current chapter is to complete our understanding of negotiation wide dynamics of affective behaviors by complementing the descriptions and justifications of such a dynamic perspective in line with available research findings. Together with the insights from the previous chapters this will help us to obtain a more comprehensive, complete, and integrated picture of the dynamic role of affective behaviors or expressions in the negotiation process, as well as to show where research still falls short in this area.

First and foremost, the previous chapters highlight that simply focusing on either one of the described effects does not suffice to explain the dynamics of affective behaviors in negotiations (Brett et al., 2004; Olekalns & Weingart, 2008; Taylor, 2002b). This may have become particularly obvious in the previous chapter describing the procedural dynamics, since a description of negotiation phases is naturally based on the behaviors of the negotiators in these phases. Moreover, a simple inclusion of the factor time does not yet make an analysis dynamic, as negotiation wide dynamics depict the flow of all events that shape a negotiation encounter (Taylor, 2002b), which includes the factor time but also behaviors that emerge and change over time. Although some researchers pronounced this complexity of negotiation dynamics in terms of different effects (Brett et al., 2004; Olekalns & Weingart, 2008; Taylor, 2002b), most studies that intend to address the negotiation process, either focus on intra-personal or inter-personal effects in isolation from each other, and mostly by disregarding the factor time, that is, continuous patterns of evolvement and change over time. As previously indicated, and as pointed out by other researchers, this is considered as an avoidable limitation of current research in this area that should be addressed (Barry, 2008; Bartel & Saavedra, 2000; Côté, 2005; George, 1990; Keltner & Kring, 1998; Kenny & Cook, 1999; Morris & Keltner, 2000). It is avoidable, because in most cases where data from dyadic negotiations is collected, information on both the intra-personal and inter-personal levels would be available. Consequently, asking additional research questions, discussing additional theoretical assumptions, or employing more advanced methods of analysis, would be some ways to overcome the mentioned limitation. Nevertheless, yet only a few studies particularly addressed the behavioral dynamics that shape a negotiation encounter, by including intra-personal and inter-personal effects (Butt et al., 2005; Ferrin, Bligh, & Kohles, 2008; Liu & Wilson, 2011; Overbeck et al., 2010; Turel, 2010; Van Kleef et al., 2004b). Not surprisingly, with respect to the effects of affect and emotions in negotiations, research is more limited in that sense (Butt et al., 2005; Liu, 2009; Overbeck et al., 2010), which is unfortunate because "consequences of the experience and expression of emotion are both intrapersonal and interpersonal" (Côté, 2005: 510).

Since we addressed the AC (chapter B.2.1) and SF (chapter B.2.2) perspectives by Morris and Keltner (2000) in our discussion of the intra-personal and inter-personal levels, respectively, it is further worth noting that the authors also elaborate on the complementarity of these perspectives, and hence on the complementarity of the intra-personal and inter-personal levels of analysis. Their argument for this complementarity rests upon the assumption that cognitions and resulting behaviors are influenced by affect, and vice versa. Put differently, affect operates at a cognitive or intra-personal level and can spread interpersonally by being communicated, which further influences affective perceptions and subsequent affective behaviors on a cognitive or inter-personal level. Consequently, the authors conclude that “emotions are involved in different dynamics at different levels of analysis” (Morris & Keltner, 2000: 8).

Thus, when addressing the dynamics of affective behaviors it is important to be aware that affective perceptions and behaviors are interlinked and continuously influenced by intra-personal as well as inter-personal effects (Barsade & Gibson, 2007; Côté, 2005; Parkinson, 1996). Stimuli that originate from the inter-personal level, that is, the social interaction process, are being picked-up and processed (automatically), and may thereby lead to an (automatic) affective response (Ilies et al., 2007; Totterdell, 2000; Totterdell et al., 1998). In that respect, inter-personal expressions of affect are the result of (automatic) processes of intra-individual perceptions of and adaptations to environmentally experienced affect (Chartrand, Maddux, & Lakin, 2005; Kelly & Barsade, 2001; Van Kleef et al., 2004a, 2004b, 2010b; Van Kleef et al., 2008). More specifically, an emotion expressed by one person may have a certain meaning for or provide some additional information to a potential negotiation partner, who in turn may respond in different ways, depending on his or her perception and interpretation of the observed stimuli. Accordingly, affect can be said to have inter-personal coordination functions (Ekman, 1992; Keltner & Haidt, 1999; Scherer & Ekman, 1984) and serve as explicit or implicit individual guidance for subsequent social or inter-individual behaviors (Cohn & Tronick, 1987; Keltner & Haidt, 1999). These interplays of affective perceptions and behaviors, hence, are manifestations of intra-personal and inter-personal affective processes, which further induce and explain specific affective effects of, for example, reciprocity and contagion (Chartrand et al., 2005). The concept of mood maintenance (Van Kleef et al., 2010b), which is an addition to the theory of emotional contagion (Hatfield et al., 1994), further helps to illuminate the just outlined interdependencies. Here it is assumed that people in positive mood aspire to maintain it. In accordance with classical emotional contagion, perceived positive affect leads to subsequent expressions of positive affect as it sustains positive mood. However, people in positive mood may respond to a perception of negative affect with subsequent expressions of positive affect in order to avoid a shift to negative mood. Van Kleef, De Dreu, and Manstead (2010b) exemplify this process by arguing that a person in positive mood may respond to perceived sadness with acts of generosity. Affective impression management and intentional affective induction are other examples for the interrelation of intra-personal and inter-personal emotional processes (Kelly & Barsade, 2001). They describe the attempt to deliberately express specific kinds of affect in order to influence a counterpart’s emotions and can also be understood as employed affective tactics.

In sum, the expression and spreading of affect in negotiations originates from effects at the negotiators’ intra-personal as well as inter-personal levels, which form the basis for inter-individual affective communication and transfer (Barsade, 2002; Butt et al., 2005; Johnson-Laird & Oatley, 1989; Kelly & Barsade, 2001; Keltner & Haidt, 1999; Morris & Keltner, 2000; Van Kleef et al., 2004a). Moreover, the totality of affective communications and counter-communications contributes to the formation of a shared social context (Parkinson, 1996), and thereby establishes a collective or dyad level affective climate (Barsade & Gibson, 1998), which further shapes subsequent intra-dyad (i.e., intra-personal and inter-personal) behaviors (Kelly & Barsade, 2001). Put differently, affective expressions by one negotiator are interpreted on an individual level by the negotiator's opponent who receives, reads, and interprets these behaviors, which influences the opponent's response and also provides contextual meaning to the whole situation at hand. This may in turn sustain or alter the affective climate, which again serves as additional information and input for further individual behaviors (Bartel & Saavedra, 2000; Keltner & Haidt, 1999). As Bartel and Saavedra (2000) point out, these interdependencies of intra-personal and inter-personal effects, and their relation to the collective affective climate, are described as patterns of double interacts by Weick (1979). A double interact in terms of affective expressions would thus describe a process in which individual affective expressions provoke affective responses from the opponent, which again result in further affective expressions. These (simple) patterns of double interacts, on the one hand contribute to the development of a shared affect climate, and on the other originate from it and hence are influenced by it (Bartel & Saavedra, 2000; Rafaeli & Sutton, 1987). These aspects of affective behaviors show that it is important to consider their dynamics in negotiations on a joint and interconnected level (Barry, 2008; Bonito, 2002; Butt et al., 2005). In other words, the different effects to be analyzed should be examined simultaneously. Otherwise we would fail to address the interdependencies that characterize social interactions and negotiation encounters (Butt et al., 2005; O'Connor & Arnold, 2001). Butt, Choi, and Jaeger (2005), for example, demonstrate this by showing that a negotiator's behaviors are contingent on self-caused emotions (i.e., emotions originating at the intra-personal level) and other-caused emotions (i.e., emotions originating at the inter-personal level).

In addition, it is important to consider these effects of interdependence from a procedural perspective, that is, over time, which makes the analysis of the dynamics of affective behaviors even more cumbersome, since we add a supplementary level of complexity that needs to be taken into account. Accordingly, it is expected that the different effects that account for the dynamics of affective behaviors influence the negotiation process in different ways in different phases of the negotiation encounter (Barry & Oliver, 1996). With respect to the intra-personal level, each negotiator's affective behaviors can be expected to change over time. Relatedly, at the inter-personal level, the negotiators' affective responses to each other can also be expected to change over time. In addition, it is assumed that negotiators show similar affective behaviors at the intra-personal and inter-personal levels within a negotiations phase. Hence, within specific negotiation phases synchronous or related affective behaviors of the interactants may be expected, while different phases may be characterized by different affective behaviors (Morris & Keltner, 2000). Accordingly, Morris and Keltner (2000) and Weingart and Olekalns (2004) argue that the procedural evolvement of negotiations in terms of affective behaviors within different negotiation phases, reflects negotiation progress and thus provides information on how the negotiators are doing or how the negotiation is progressing.

Olekalns and Weingart (2008) further provide a well grounded model that addresses most of these interdependencies in negotiations from a dynamic perspective. In particular, they argue that negotiation dynamics are characterized by procedural stability and shifts. On the inter-personal level, stability refers to the matching or reciprocation of positive and negative behaviors, while shifts refer to mismatching of behaviors in terms of structural sequences. Further, these behavioral dynamics of stability or shifts expand on a procedural (i.e., temporal) level and may result in either phases of coherent behaviors, or transitions between phases of incongruent behaviors. Consequently, behaviors may have reinforcing tendencies or redirect the negotiation process, both within distinct negotiation phases as well as over these. In this respect, the authors highlight the cross-level dynamics of negotiation processes, which "develop along two parallel, but interdependent, tracks in which sequences play out in the context of phases" (Olekalns & Weingart, 2008: 141). This means that, on the one hand, behaviors at the inter-personal level can be aligned, in which case continuity and stability define the negotiation process, which results in the prolongation of a negotiation phase. On the other hand, behaviors can also be misaligned in which case behavioral shifts occur, which can result in a transition to another negotiation phase. These shifts may, moreover, occur in an isolated manner or induce reciprocal behaviors of the opponent. In the former case, a behavioral shift of one person will not be matched by the opponent and thus not change the procedural dynamics on a synchronous and joint level. In the latter case, a behavioral shift will be matched and reciprocated by the opponent and thus result in a synchronous and joint redirection of the negotiation process. It is further argued that these processes of shifts and stability have important and different functions in different negotiation contexts at different points in time. First of all, these are important for the progressions of negotiations and for potential negotiation success, as it is expected that successful negotiations are characterized by a number of distinct and consecutive negotiations phases, as outlined by the previously introduced three-phase model of negations (see chapter B.2.4.a). Although distributive negotiation phases are important in negotiations, they need to result in shifts to more cooperative or problem-solving behaviors at some point. Also integrative negotiation phases will not pertain throughout a negotiation encounter, and may need to result in more competitive behaviors or be induced from these, in order to resolve conflicting issues in a constructive manner. Olekalns and Weingart (2008) thus provide an important contribution to the analysis of negotiation dynamics by pointing out how inter-personal synchronous or misaligned behaviors impact the negotiation process, also in consideration of its evolvement over time. In this respect, they further highlight that negotiations are typically characterized by mixed, that is, integrative and distributive, strategies (Walton & McKersie, 1965) with integrative following distributive behaviors (Olekalns et al., 2003; Putnam, 1990). Conceptualizing and analyzing the negotiation process in terms of patterns of stability and shifts over and within temporal entities (i.e., phases) thus enables us to get a more detailed picture of the behavioral dynamics that define the negotiation process (Olekalns & Weingart, 2008). Although the model outlined by Olekalns and Weingart (2008) provides important insight for the analysis of negotiation dynamics it, however, falls short to address dynamics at the intra-personal level of analysis in more detail. Moreover, the authors only refer to behavior in general and do not specifically address affective dynamics.

Few researchers already addressed affective behaviors in social interactions from a dynamic perspective, in particular with respect to behavioral dynamics, and if so, with some limitations (Butt et al., 2005; Knobloch & Theiss, 2010; Liu, 2009; Maitlis & Ozcelik, 2004; Overbeck et al., 2010; Stroud, Durbin, Saigal, & Knobloch-Fedders, 2010; Theiss & Solomon, 2006). Butt, Choi, and Jaeger (2005) showed that both emotional valence (i.e., positive and negative emotions) as well as agency (i.e., other- and self-caused emotions), characterize negotiator behaviors. In particular, they found evidence that self-caused and other-caused positive or negative emotions result in different kinds of behaviors. For example, pride-achievement was found to elicit compromising or integrating behaviors at the inter-personal as well as at the intra-personal levels, whereas other emotions, such as gratitude or anger, were found to elicit specific behaviors only at one of these levels. Overbeck, Neale, and Govan (2010) studied power differences between negotiators and investigated the impact of anger and happiness on value claiming and creation. They showed that powerful negotiators only respond to their own or intra-personal emotional states, whereas less powerful negotiators are only influenced by emotions at the inter-personal level and thus by emotions that originate from their counterpart. Maitlis and Ozcelik (2004) investigated the dispersion of toxic decision processes via the spread of negative emotions in an organizational context. They found that negative emotions unfold over three consecutive phases that are defined by diverse interaction patterns, which are shaped by different emotions. Support for inter-personal reciprocal and complementary emotional transfer, via emotional contagion and what the authors termed “empathetic transfer”, was found. Additionally, structural sequences of emotional behaviors were identified and related to intra-personal processes of emotional perceptions and expressions. In a study of couples in a romantic relationship Theiss and Solomon (2006) found that inter-personal relational uncertainties positively influenced emotional and cognitive jealousies which, however, was not the case for intra-personal uncertainties. A longitudinal study by Knobloch and Theiss (2010) similarly investigated emotions and relational uncertainty for dating couples. The authors showed that relational uncertainty was positively related to emotional experiences at the intra-personal and inter-personal levels and that a partner’s experience of negative emotions induced relational uncertainty over time. Further, Stroud, Durbin, Saigal, and Knobloch-Fedders (2010) examined married couples and found that reports of negative emotionality by both partners and individual relationship dissatisfaction were positively related, whereas the opposite was found to be the case for positive emotionality. Relatedly, Liu (2009) examined the influence of emotions on negotiator behaviors and showed that experienced anger resulted in relationally destructive behavior. On the inter-personal level anger was found to induce reciprocal as well as complementary patterns of responses.

In sum, all of these studies showed that investigations of behaviors and affect in dyadic interactions should at least include intra-personal as well as inter-personal levels of analysis. Very few of these studies additionally included a temporal level of analysis, in order to capture behavioral and affective dynamics over time, that is, procedural dynamics. Moreover, note that yet few pieces of research addressed the dynamics of affect in the context of negotiations. Also, from the studies summarized above, the majority deal with behaviors of couples in a non-negotiation context. With respect to computer-mediated negotiations no empirical investigation of behavioral affective dynamics is available to date. In addition, the scarcity of empirical evidence of affective dynamics in traditional FtF negotiations also makes it difficult to draw well grounded inferences from these for the case of CMC. Also, all of the cited studies either investigated the impact of emotions on strategic behaviors or the inverse, which means that no studies addressed the influence of affect on subsequent affect. Put differently, current research on affective dynamics in negotiations is focused on behavior-emotion or emotion-behavior links, but disregards the essence of affective dynamics, which are emotion-emotion links. Also, with the exception of Overbeck, Neale, and Govan (2010), the studies situated in a negotiation context are based on felt or experienced emotions that were assessed via questionnaires. In addition, these pieces of research are focused on a few specific and discrete emotions. Thus, to develop a better understanding of the dynamics of affective behaviors in online negotiations additional evidence is needed. Although research does not provide specific guidance on this issue, we can use the Emotion as Social Information (EASI) model (Van Kleef, 2009; Van Kleef et al., 2010b) to approach this topic from a theoretical angle.

B.2.5.a. The Emotion as Social Information (EASI) Model

The EASI model rests upon the assumption that affective behaviors are driven by "inferential processes and affective reactions" (Van Kleef et al., 2010b: 55), which are two different, but interrelated, processes that are responsible for affective behaviors (Van Kleef, 2009). Inferential processes describe the explicit consideration of affect as information received from the opponent and thus characterize affect as informational input for subsequent decisions and behaviors. Affective reactions describe the implicit consideration of affect in line with classical emotional contagion (Hatfield et al., 1993) and thus refer to the automatic spreading of affect and subsequent unintentional affective expressions. Both of these processes may result in similar or different affective behaviors. Further, it is argued that either one of these processes will always be more dominant than the other, depending on two additional factors. The first factor is context specific and relates to the cooperativeness or competitiveness of the situation at hand. It is proposed that cooperative situations promote affective reactions and thus processes of automatic affective transfer and unintentional matching of affective expressions. The second factor is more person specific and relates to an individual's "motivation to consider and process the information conveyed by the other's emotional expressions" (Van Kleef et al., 2010b: 56). This motivation to search for and process contextual information more thoroughly roots in a person's epistemic motivation (Kruglanski, 1989), that is, the motivation to invest time and effort to do so (De Dreu & Carnevale, 2003). It is assumed that the lower an individual's epistemic motivation is, the less likely he or he she will be influenced by affective expressions from his or her counterpart (De Dreu, 2003; Van Kleef et al., 2004b). Also note that these person and contextual specific factors may need to be considered in a joint manner (De Dreu, Koole, & Oldersma, 1999). For negotiations this means that negotiators may be more motivated to search for and process additional information in competitive situations, in order to be able to assert and defend their positions. In particular, it could be expected that affective expressions in the first negotiation phase are rather driven by inferential processes, due to the competitive nature as well as the notorious lack of information that characterizes this phase. Also affective expressions in the second negotiation phase could be expected to be governed by inferential processes, as this phase is believed to be more competitive than the first one and that the negotiators engage in behaviors of spirited conflict and fact-based reasoning. Affective expressions in the third negotiation phase, however, could be expected to be driven by affective reactions, because this phase is of cooperative nature if an agreement is reached. Although reasonable, Van Kleef, De Dreu, and Manstead (2010b) also mention that this line of reasoning could not be validated in previous studies by examining correlations between the two mentioned factors (De Dreu, Beersma, Stroebe, & Euwema, 2006; De Dreu et al., 1999). Nevertheless, the EASI model provides a well grounded starting point for the analysis of the dynamics of affective behaviors.

In more detail, the EASI model focuses on four classes of emotions (i.e., happiness, anger, sadness, and guilt) and explains how individuals may react to expressions of these under different environmental conditions (i.e., in competitive or cooperative situations). Here it is worth pointing out that Van Kleef, De Dreu, and Manstead (2010b) refer to these emotions in terms of classes and use the mentioned discrete emotions, such as happiness or anger, as representatives of these classes. This means that emotions that are similar to the addressed discrete emotions are believed to have similar effects. For happiness such emotions would, for example, be joy or pleasure, whereas emotions that are similar to anger would include frustration or irritation. Also, the insights drawn from the EASI model are compatible with dimensional models of affect, such as those proposed by Russell (1980) and Watson and Tellegen (1985), since discrete emotions or classes of emotions can be described by underlying affective dimensions of valence and activation. In that sense, the discrete and dimensional perspectives of affect (outlined in chapter A.2) can also be reconciled (Mauss & Robinson, 2009). For an overview of where the here mentioned discrete emotions are located in the two-dimensional affective space spun by the valence and activation dimensions, the reader is referred to Figure 2 (presented in the upcoming chapter D.3.1), or to the works published by Russell and Barrett (1999) or Yik, Russell, and Feldman Barrett (1999).

First, in competitive phases affective expressions induce and are the result of inferential processes. Hence, affective expressions provide additional information to the negotiators and will be interpreted in terms of their strategic value. In this respect, happiness and similar emotions may be interpreted as weakness (Van Kleef et al., 2004a) or signal that the opponent is doing too well and may receive a larger share of the pie than oneself (Lanzetta & Englis, 1989). Hence, such emotions will not be matched by similar emotions, but may induce the opponent to claim more value and behave more competitively, also because one may infer that the communicator of these emotions is willing to make concessions. Anger and similar emotions may signal dominance and induce the opponent to comply and make concessions in order to prevent impasses and other negative consequences. If these emotions are regarded as appropriate, for example, when used to signal the importance of issues or negotiable limits to the opponent (Van Dijk, Van Kleef, Steinel, & Van Beest, 2008), then they may be productive and can induce concessions from the opponent (Steinel, Van Kleef, &

Harinck, 2008; Van Kleef & Côté, 2007). Similarly, such emotions may induce concessionary behaviors if the communicator of these is perceived as more powerful and tough (Sinaceur & Tiedens, 2006). To the contrary, if anger and similar emotions are regarded as inappropriate, they may have destructive potential, impede the making of concessions, and result in more competitive behaviors (Steinel et al., 2008; Van Kleef & Côté, 2007). Moreover, it was found that the effects of anger seem to be mitigated by time pressure (Van Kleef et al., 2004b). Sadness and similar emotions, such as worry or fear, may be interpreted as weakness or signs of supplication and could induce the opponent to take advantage of the situation and claim more value, but also to make him or her play nice and respond to these in a positive manner by making concessions (Van Kleef & Van Lange, 2008). It is, however, also suggested that these emotions only have a weak effect in competitive situations and may thus either leave behaviors unchanged or result in behavioral passivity (Van Kleef, De Dreu, & Manstead, 2006). Finally, guilt and similar emotions that serve functions of appeasement (Keltner & Buswell, 1997), may be interpreted as signs of wrongdoing, and signal the communicator's motivation for reparation and compensation. In this respect they could induce an opponent to expect concessions, but also to engage in more competitive and exploitative behaviors in order to claim what ought to be his or hers (Van Kleef et al., 2006).

Second, in cooperative phases affective expressions induce and are the result of affective reactions. Hence, affect is believed to spread automatically and result in unintentional expressions of affect, rather than being interpreted and used in terms of its strategic value. In this respect, happiness and similar emotions are likely to be contagious as negotiators tend to trust each other and intend to collaborate (De Dreu, Beersma, Steinel, & Van Kleef, 2007; Forgas, 1995). Consequently, these emotions may foster liking (Shaver et al., 1987), induce more cooperative behaviors (Barsade, 2002), promote affiliation, and benefit problem solving behaviors (Van Kleef, 2009). The spread of anger and similar emotions may impact cooperation negatively and result in increased competition (Barsade, 2002) and frustration, as it signals dissatisfaction and aggression. Further these emotions may reduce performance and can result in emotional deadlocks. If, however, epistemic motivation is high or increases, then these emotions may induce inferential processes and result in more cooperative and problem solving behaviors. The spread of sadness and similar emotions, such as worry or fear, may induce caring and supportive behaviors. Thus, these emotions are believed to induce more cooperation, which may manifest itself in the expression of supportive emotions as well as behaviors, such as an increase in concession sizes (Van Kleef et al., 2006). Finally, the spread of guilt and similar emotions signals appeasement and may thereby counter competitive behaviors and preserve a cooperative climate (Keltner & Buswell, 1997). Also, these emotions help to repair and ameliorate relationships, induce forgiveness, and can mitigate negative consequences of negatively valenced emotions such as anger, as well as provoke positive emotions.

The EASI model proposed by Van Kleef (2009) provides important insights with respect to the affective dynamics that shape and arise out of the negotiation process. It shows that affective expressions can be expected to have different effects in different negotiation phases.

Further, it highlights that the "affective setup" of communications within phases drives the negotiation process and impacts transitions from one phase to another. We expect to validate the propositions put forth by the EASI model by conceptualizing and analyzing affective behaviors from a dynamic perspective.

B.3. Hypotheses and Research Questions: Part I

To advance our understanding of the dynamics of affective behaviors in text-based online negotiations in a guided manner, we subsequently formulate hypotheses and research questions to be addressed. These are based on the theoretical foundations and empirical findings provided and discussed in previous chapters. In this respect, the present work generally seeks to provide additional evidence and explanations for the dynamic effects of affective behaviors in and throughout the negotiation process. Further, the present work provides initial evidence and explanations for different dynamics of affective behaviors in successful and failed negotiations. It will also be shown and argued that using a more comprehensive research framework for the analysis of the dynamics of affective behaviors benefits the analysis of the negotiation process and allows us to investigate effects that would remain uncovered otherwise.

The first set of hypotheses (H1a and H1b) is aimed at the analysis of affective behaviors within the first negotiation phase. In line with phase model theories of negotiations, it is expected that the initial negotiation phase is characterized by limited expressions of negatively valenced affect and thus more by positively valenced expressions of affect. Hence, we state the following hypothesis:

> *H1a: The first negotiation phase is not predominantly characterized by negatively valenced affective behaviors, in successful and failed negotiations.*

Also, the first negotiation phase is expected to be predominantly of competitive nature. Accordingly, as proposed by the EASI model (Van Kleef et al., 2010b), the negotiators' affective expressions should not be reciprocated or found to be synchronous, but rather be interpreted and used in terms of their strategic value in this phase. Note that this seems to contradict the proposition of phase model theories of negotiations that behavioral and affective sequences tend to be of reciprocal nature in the first negotiation phase (Adair & Brett, 2005; Morris & Keltner, 2000; Olekalns et al., 2003; Weingart et al., 1999). However, these models also show that particularly the outset of negotiations is characterized by mixed behaviors of competition as well as trust and relationship building (Adair & Brett, 2005; Putnam, 1990). Affective expressions that support and accompany these behaviors may thus also be expected to be of mixed nature. In addition, it may be that behavioral synchrony may not perfectly coincide with affective synchrony in a sense that affective expressions are part of complementary or structural sequences, rather than strictly reciprocal ones. Moreover, it is worth pointing out that negotiation research addressing the negotiation process in terms of phases only puts a very marginal emphasis on sequences of affective expressions, and that the limited propositions and findings are not entirely conclusive, as some propose that the first negotiation phase is characterized by sequences of neutral expressions of affect (Broekens et al., 2010), whereas others propose it is characterized by sequences of positive expressions of affect (Morris & Keltner, 2000). In contrast to these limited and inconclusive propositions regarding sequences of affective expressions, researchers seem to be in accordance that the outset of negotiations is characterized by sequences of mixed behaviors. Consequently, we base the following hypothesis on the propositions put forth by Van Kleef, De Dreu, and Manstead (2010b) and state:

> *H1b: The affective behaviors of the negotiators are not in sync in phase 1, in successful and failed negotiations.*

The next hypothesis (H2) is aimed at the analysis of affective behaviors between the first two negotiation phases and focuses on the change of affective behaviors from phase 1 to phase 2. Based on the assumptions put forth for the formulation of the previous hypotheses (i.e., the characterization of affective behaviors in phase 1 as not predominantly negative, the competitive nature of phase 1, as well as the interpretation and use of affective expressions in terms of their strategic value), it can be expected (in line with the EASI model) that competitive behaviors as well as negatively valenced expressions of affect will gain momentum. Thus, we state the following hypothesis:

> *H2: Affective behaviors become more negative from phase 1 to phase 2, in successful and failed negotiations.*

The next hypothesis (H3) is aimed at the analysis of affective behaviors within the second negotiation phase. In line with phase model theories of negotiations it is expected that this negotiation phase is characterized by negatively valenced expressions of affect. Also, the second negotiation phase is expected to be more competitive than the first phase. Accordingly, as proposed by the EASI model, affective expressions should again not be reciprocated or found to be synchronous but be interpreted and used in terms of their strategic value. Here, phase model theories support this assumption (in contrast to what was put forth for phase 1), that affective expressions define complementary or structural sequences rather than strictly reciprocal or synchronous ones in this negotiation phase (Adair & Brett, 2005; Morris & Keltner, 2000). Thus, we state the following hypothesis:

> *H3: The affective behaviors of the negotiators are not in sync in phase 2, in successful and failed negotiations.*

The next set of hypotheses (H4a and H4b) is aimed at the analysis of affective behaviors between the last two negotiation phases and focuses on the change of affective behaviors from phase 2 to phase 3. Based on the assumptions put forth for the formulation of the previous hypotheses (i.e., the characterization of affective behaviors in phase 2 as predominantly negative, the competitive nature of phase 2, as well as the interpretation and use of affective expressions in terms of their strategic value), negotiations may develop in one of two directions. On possible result can be an increase of cooperation and positively valenced expressions of affect, and a second possible result can be an increase of competition and negatively valenced expressions of affect. In line with phase model theories, the former is to be expected for successful negotiations, whereas the latter is to be expected for failed negotiations. Hence, we state the following hypotheses:

> *H4a: Affective behaviors become more positive from phase 2 to phase 3, in successful negotiations.*

> *H4b: Affective behaviors become more negative from phase 2 to phase 3, in failed negotiations.*

The next set of hypotheses (H5a, H5b) is aimed at the analysis of affective behaviors within the third and last negotiation phase. In line with phase model theories of negotiations, it is expected that this negotiation phase is characterized by positively valenced expressions of affect in successful negotiations, and by negatively valenced expressions of affect in failed negotiations. In addition, the third negotiation phase is expected to be more cooperative in successful negotiations, and more competitive in failed negotiations, than the second negotiation phase. Accordingly, as proposed by the EASI model, positive affective expressions should spread or be reciprocated and the positive emotional behaviors of the negotiators should be found to be in sync in successful negotiations, which should result in an increase of cooperation and ultimately negotiation conclusion. In failed negotiations affective expressions should not be reciprocated or synchronized between the negotiators, but be interpreted and used in terms of their strategic value, which should result in an increase of competition and ultimately negotiation breakdown. For successful negotiations, these assumptions mostly support the proposition of phase model theories of negotiations, that affective expressions induce reciprocal sequences or the synchronization of the negotiators' affective behaviors in the last negotiation phase (Bernieri et al., 1988; Broekens et al., 2010; Morris & Keltner, 2000). Phase model theories, however, also put forth that affective expressions may still be governed by structural sequences in this negotiation phase in successful negotiations (Adair & Brett, 2005), at least to some extent. For failed negotiations, support coming from phase model theories is weak, due to a lack of empirical evidence. Nevertheless, it can be argued that the third negotiation phase is a prolongation of the second negotiation phase, with the difference being that negatively valenced expressions of affect become more intense. Consequently, we formulate the following hypotheses:

> *H5a: The affective behaviors of the negotiators are in sync in phase 3, in successful negotiations.*

> *H5b: The affective behaviors of the negotiators are not in sync in phase 3, in failed negotiations.*

In addition to these more specific hypotheses, which are based on empirical and theoretical research findings, we also formulate more general research questions, which are aimed at investigating and understanding the dynamics of affective behaviors within and throughout the negotiation process from a more integrative perspective with respect to the different effects to be analyzed and that contribute to the overall dynamics of affective behaviors.

RQ1: Do affective behaviors show different patterns of evolvement over time in successful and failed negotiations?

With respect to the formulated hypotheses, RQ1 comprises H1a, H2, H4a, and H4b. The global aim of this research question is to examine the effects covered by the individual hypotheses from a joint and procedural perspective, as well as to delineate and explain the dynamic patterns of affective behaviors over time, and to distinguish these patterns between failed and successful negotiations. Put differently, we seek to understand if affective behaviors differ between successful and failed negotiations at specific time points (i.e., in each of our three negotiation phases), as well as if affective behaviors change differently over time (i.e., from one negotiation phase to another) in successful and failed negotiations.

RQ2: Does the inter-personal synchrony of affective behaviors within negotiation phases differ between successful and failed negotiations?

With respect to the formulated hypotheses, RQ2 comprises H1b, H3, H5a and H5b. The global aim again is to examine the effects covered by the individual hypotheses from a joint and procedural perspective, as well as to investigate patterns of inter-personal synchronous affective behaviors (or a lack thereof) over time, and to distinguish these between successful and failed negotiations.

RQ3: Do intra-personal and inter-personal effects of affective behaviors over time differ between successful and failed negotiations?

The aim of RQ3 is to examine the influence affective behaviors of a negotiator in one negotiation phase have on his or her own, as well as on his or her partner's affective behaviors in the subsequent negotiation phase. Further, this research question also addresses the interdependencies between influences that originate from oneself at the intra-personal level, as well as from the opponent at the inter-personal level. Hence, to address this research question, the effects at each of these levels will need to be investigated while controlling for the effects at the other level. Finally, these effects will again be considered in terms of their procedural dynamics over time, in order to compare patterns between failed and successful negotiations.

PART C – Including Negotiation Support

The current Part C introduces the concept of support in electronic negotiations. Chapter C.1 points out why support matters, and Chapter C.2 provides an introduction on support systems in electronic negotiations. Further, Chapter C.3 explicates why and how support systems can and should be expected to impact affective behaviors. Finally, Chapter C.4 summarizes the second set of research questions to be addressed, with respect to the impact of decision support on the dynamics of affective behaviors in successful and failed negotiations.

C.1. Support in Negotiations

In addition to the examination of the dynamics of affective behaviors in and throughout the negotiation process we are interested in the impact of negotiation support on these dynamics. In particular, we will investigate the impact of an electronic Decision Support System (DSS) on the previously outlined dynamics of affective behaviors in text-based computer-mediated online negotiations. Since the use of and research on electronic negotiations is gaining momentum, there is also increasing interest in how computer-mediated negotiation systems can be improved. One important way to do so is the provision of support to its users, which is why research on negotiation and decision support systems is increasing (e.g., Broekens et al., 2010; Foroughi, 1995; Foroughi, Perkins, & Jelassi, 1995; Kersten & Lai, 2007; Koeszegi et al., 2006; Schoop, 2010; Schoop, Amelsvoort, Gettinger, Koerner, Koeszegi, & Wijst, 2014; Swaab, Postmes, & Neijens, 2004; Vahidov, Chen, & Kersten, 2013; Vetschera, Kersten, & Koeszegi, 2006).

In general, negotiation researchers make a case for the benefits of support in negotiations by highlighting that negotiations are often not concluded successfully (Foroughi, 1998; O'Connor & Arnold, 2001; Pruitt & Rubin, 1986; Raiffa, 1982; Thompson, Wang, & Gunia, 2010), or result in inefficient or suboptimal outcomes (Lim & Benbasat, 1992-93; Pruitt, 1981; Rangaswamy & Shell, 1997; Sebenius, 1992; Tsay & Bazerman, 2009). Reasons for this are seen in human limitations of cognitive abilities and information processing capacities (e.g., Bazerman & Neale, 1983; Lim & Benbasat, 1992-93). Since negotiations are increasing in complexity, also due to their digitalization, negotiators may thus need additional guidance and support to cope with this trend (Foroughi, 1998). Hence, negotiation or decision support should help in decreasing cognitive efforts such that negotiators are less affected and restricted in their decisions and behaviors by their cognitive limitations (Kersten & Cray, 1996). In this respect, negotiation or decision support may aid to mitigate the effects of bounded rationality (Simon, 1990) and cognitive errors or biases (Bazerman & Neale, 1983; Foroughi, 1998). Foroughi (1998), for example, explicates some of the most important biases support in negotiations can help to attenuate, such as framing, the fixed-pie assumption, premature negotiation closure, the overvaluation of salient solutions or information, or a predominant focus on single issues rather than considering multi-issue offers to make trade-offs. Moreover, support in negotiations may prevent affect-related biases, like for example tendencies to save face, overconfidence, inflated expectations, or escalations of negative expressions of affect (Broekens et al., 2010; Foroughi, 1998). Also, or thereby, support can help to improve communication (Foroughi, 1998; Pinkley, 1990), which is one of its most important benefits, since effective communication is central for negotiations (Schoop et al., 2014; Schoop & Quix, 2001; Weigand et al., 2003) as well as for the proper expression and understanding of affect in text-based environments (as outlined in chapter A.3.7). Thus, overall "support increases decision making efficiency and effectiveness" (Singh & Ginzberg, 1996: 156) by reducing, or helping negotiators to cope with complexities, which may improve the communication and negotiations process, and ultimately negotiation outcomes.

C.2. Support Systems

The interest in developing negotiation and decision support systems dates back to the 1960s and '70s (Ferguson & Jones, 1969; Foroughi et al., 1995; Kersten & Lai, 2007; Nyhart & Goeltner, 1987; Walton & McKersie, 1965) and augmented with the development of Group Support Systems (GSSs) (e.g., DeSanctis & Gallupe, 1987; Foroughi et al., 1995; Kersten, 1985). In this respect, Negotiation Support Systems (NSSs) are derived from GSSs, as both types of systems intend to support a group of interactants with the use of information technology (De Moor & Weigand, 2004; Foroughi, 1995; Foroughi et al., 1995; Kersten & Cray, 1996). NSSs are, however, specifically tailored to the requirements of negotiators who wish to resolve problems, conflicts, or disputes, in order to arrive at a jointly acceptable solution or agreement (Dennis, George, Jessup, Nunamaker, & Vogel, 1988; DeSanctis & Gallupe, 1987; Foroughi, 1995; Foroughi et al., 1995; Lim & Benbasat, 1992-93). To be more precise, NSSs consist of two basic components, "a decision support system (DSS) for each negotiating party, and an electronic linkage between the DSSs so that the negotiators may communicate electronically" (Lim & Benbasat, 1992-93: 33). Consequently, computer-mediated negotiation systems that provide each negotiator with some sort of individual decision support are defined as NSSs (Foroughi, 1998; Kersten & Lai, 2007). Moreover, if NSSs are provided and used via the Internet, then they are also referred to as Electronic Negotiation Systems (ENSs) (Kersten & Lai, 2007; Vahidov et al., 2013). Since we are investigating negotiations that were conducted online, we are dealing with the latter category.

C.2.1. Why Support Matters in Electronic Negotiations

That support is important in electronic negotiations is shown by research indicating that NSSs, and in particular DSSs, can impact negotiation outcomes as well as the negotiation process (e.g., Broekens et al., 2010; Delaney et al., 1997; Gupta, 1989; Kersten & Lai, 2007; Kersten & Zhang, 2003; Rangaswamy & Shell, 1997; Singh & Ginzberg, 1996; Weber, Kersten, & Hine, 2006). Consequently, the goal of research in this area is to develop NSSs and DSSs that support the complete negotiation process (Carmel, Herniter, & Nunamaker, 1993; Delaney et al., 1997; Foroughi, 1995), including inter-personal communication (Jain & Solomon, 2000), which is not unimportant since communication problems or misunderstandings can disrupt the negotiation process at any time (Weber et al., 2006). Also, the purpose of these systems to facilitate the decision making process may additionally stimulate agreement oriented communications (Singh & Ginzberg, 1996; Swaab et al., 2004).

Interestingly, NSSs and DSSs provide their users with additional information while also reducing the information load for them (Kersten & Cray, 1996). A reduction of information load can be achieved by using software tools to condense and present information in different ways, for example, by evaluating and ranking alternatives (De Moor & Weigand, 2004; Kersten & Lai, 2007), or by calculating and displaying utility values, functions, and graphs (Vahidov et al., 2013). Consequently, such decision-analytic tools additionally help negotiators to understand and formalize their preferences and to benchmark these throughout the negotiation process (Rangaswamy & Shell, 1997; Swaab et al., 2004), also, or in particular, for relatively complex situations (Northcraft, Brodt, & Neale, 1995; Northcraft, Preston, Neale, Kim, & Thomas-Hunt, 1998). Such decision support aids thus serve negotiators as individual feedback (Arunachalam & Dilla, 1995; Swaab et al., 2004), which means that these functionalities to reduce the information load, therefore, also lead to the provision of additional information, such as the mentioned utility values, which help a negotiator to better understand the negotiation problem in line with his or her own preferences and positions (Kersten & Lai, 2007). The provision of such feedback the system generates for and presents to its user is also referred to as "solution process monitoring" (Singh & Ginzberg, 1996: 157) and may further indicate to a negotiator how well he or she is doing in terms of strategy execution as well as solution closeness. Correspondingly, the provision of analytical guidance can influence a negotiator's confidence and satisfaction with respect to his or her situation and position positively, as well as increase his or her commitment to the negotiation process, which may further reduce settlement barriers and the time needed to reach an agreement (Delaney et al., 1997; Lim & Benbasat, 1992-93).

Since negotiating itself is a cognitively demanding activity (e.g., Miyata & Norman, 1986; Singh & Ginzberg, 1996), NSSs and DSSs that process and prepare information help negotiators to free up cognitive resources, and thus to decrease their cognitive limitations and alleviate negative impacts of cognitive biases (Foroughi, 1998; Jain & Solomon, 2000; Kersten & Lai, 2007; Perkins, Hershauer, Foroughi, & Delaney, 1996; Swaab et al., 2004; Weber et al., 2006). Put differently, the information provided by a NSS or DSS should also increase a negotiator's ownership of cognitive resources, which impacts communication and decision making quality positively (Balzer, Doherty, & O'Connor, JR., 1989; Silver, 1988; Singh & Ginzberg, 1996). It is thus proposed that NSSs or DSSs manage to rationalize the negotiation process (Lim & Benbasat, 1992-93), as well as augment the negotiators' (cognitive) abilities (Kersten & Lai, 2007). Consequently, negotiators having a support system at their disposal may negotiate more effectively and efficiently (Singh & Ginzberg, 1996) as it allows them to address complexities and solve problems in a more appropriate manner (Foroughi, 1998; Weber et al., 2006). Thus, although it is argued that DSSs particularly support analytical activities (Kersten & Cray, 1996), it can be reasonably assumed that they additionally influence holistic processes. Relatedly, Kersten and Lai (2007) point out that support systems are oriented at the user as well as the negotiation problem, since they support the negotiators on an individual level to address and solve joint negotiation problems. Finally, it is also argued that these systems can result in an increase of performance, better negotiation outcomes, and fewer negotiation breakdowns (De Moor & Weigand, 2004; Delaney et al., 1997; Foroughi et al., 1995; Pommeranz, Brinkman, Wiggers, Broekens, & Jonker, 2009; Rangaswamy & Shell, 1997; Vessey & Galletta, 1991), but furthermore also that they may impact socio-emotional and relational aspects of negotiation encounters (Broekens et al., 2010; Bui, 1994; Swaab et al., 2004).

Bui (1994) further elaborates on the impacts NSSs can be expected to have on the negotiation process and summarizes eight aspects these systems may impact. First, NSSs can increase conflict awareness as the mentioned analytical tools may draw a user's attention to specific issues and help him or her to reflect more thoroughly about individual and joint preferences as well as goals. Second, NSSs may reduce goal conflicts by encouraging its users to identify and specify the negotiable issues more clearly. Thereby, goal related misunderstandings and resulting conflicts may be mitigated, which may further induce more fact-based, reasonable, and honest discussions. This in turn should lead to fewer defensive actions, more thorough understandings of individual and joint concerns, and a more sympathetic and positive climate of interaction. Third, NSSs can reduce conflicts of judgment by encouraging negotiators to relate problems to the issues under negotiation and not to the opponent as a person. Fourth, NSSs can reduce normative conflicts as they address issues of procedural and outcome fairness by providing negotiators with neutral and unbiased information. Moreover, these systems impose a certain structure, in line with specific norms and rules of interaction, and hence aid in making the negotiation process somewhat more consistent. Fifth, NSSs can influence thoughts and perceptions about the negotiation process and everything related to it, which is further assumed to impact affect. For example, a more objective conflict handling style may mitigate the occurrence and impact of negative expressions of affect. Sixth, NSSs can influence intentions in the sense that they may motivate people to adapt their line of thinking. In this respect, negotiators may be induced to make more fact-based but also flexible decisions and become more assertive and cooperative. Seventh, NSSs can affect the negotiators' behaviors as a result of the factors mentioned above, and thus shape the progression and quality of the negotiation process. Finally, and relatedly, it is proposed that NSSs thereby impact the outcome of a negotiation in a positive way.

In general, empirical studies seem to be in agreement with respect to the benefits provided by NSSs and DSSs (e.g., Delaney et al., 1997; Foroughi et al., 1995; Koeszegi et al., 2006; Lim, 2000; Perkins et al., 1996; Rangaswamy & Shell, 1997; Weber et al., 2006). Foroughi, Perkins, and Jelassi (1995) and Delaney, Foroughi, and Perkins (1997), for example, found that the provision of NSSs resulted in higher joint outcomes as well as more balanced contracts for the negotiators. Also, they showed that NSSs increased the negotiators' satisfaction and reduced their negative perception of the negotiation climate. A reported disadvantage, however, was the increase in negotiation duration. Perkins, Hershauer, Foroughi, and Delaney (1996) confirmed the benefits of higher joint outcomes as well as more balanced contracts for negotiations conducted via a NSS, but found that negotiators needed less time to come to an agreement when provided with such a support system. Rangaswamy and Shell (1997) partly confirmed the outcome effects of NSSs found in previous studies and additionally indicated their positive impact on the negotiation process, as negotiators behaved more integratively when having a support system at their disposal. Lim (2000) also confirmed the mentioned outcome effects of NSSs and further showed that negotiators managed to exceed their expectations when provided with such a system. Overall, these studies confirm that NSSs impact the negotiation process as well as the negotiation outcome positively. Most of these pieces of research (Delaney et al., 1997; Lim, 2000; Perkins et al., 1996; Rangaswamy & Shell, 1997) also indicate that the provision of a DSS has very similar effects for computer-mediated negotiations as well as FtF negotiations, which may lead to the conclusion that the provision of support is always beneficial, disregarding the contextual settings (Jain & Solomon, 2000). Also, these studies may provide support for effects of media adaptation (Rice & Love, 1987; Walther, 1996), as outlined in chapter A.3.4. Another interesting study by Weber, Kersten, and Hine (2006) focused on online negotiations only and showed that the use of graphical support systems decreases the number of offers being made while increasing the count of words per message, as compared to non-graphical support. Although no impact on negotiation outcome was found, this study shows that different kinds of support may very well impact the negotiation process in terms of, for example, efficiency. One aspect all of these studies, however, fail to address is the dynamic evolvement of the negotiation process over time. Recently, this issue was addressed by Vetschera and Filzmoser (2012), who investigated the offer exchange in online negotiations conducted via a NSS. They found that negotiators using such a system managed to create value in the first half of the negotiation, but again destroyed some of the created value in the second half. Although these results are based on electronic negotiations conducted via a NSS only, and hence were not compared to non-supported negotiations, they nevertheless indicate that previous findings and conclusions may need to be refined in consideration of procedural changes of the negotiation process, as NSSs may have different effects at different time-points during a negotiation encounter. Moreover, no research to date addresses the impacts of DSSs on affective behaviors in the negotiation process from a dynamic perspective in online negotiations. Closing this research gap is one further aim of the present research.

C.3. The Impact of DSSs on Affective Behaviors

The present research presumes an influence of decision support on affective behaviors in and throughout text-based online negotiations. Past research provides preliminary justification for this presumption by showing that decision and negotiation support systems influence the negotiation outcome and process. Since the procedural development and the final outcome of a negotiation are naturally dependent on the negotiators' behaviors and communications, it can be assumed that negotiation and decision support systems that impact these aspects, will also impact affective behaviors. Moreover, such support tools are beginning to be used more frequently in negotiations (Kersten & Lai, 2007), due to the increase of electronic commerce, as well as information and communication complexities and speed. Additionally, these new challenges are subject to the limited cognitive and information processing capabilities of human negotiators, which again highlights the necessity for support in negotiations (Weber et al., 2006). Consequently, researchers call for a more nuanced analysis of the impact of NSSs and DSSs on the interaction process that emerges between the negotiators (Foroughi, 1998; Kersten & Lai, 2007; Turel, Yuan, & Rose, 2007; Vetschera, 2007). The empirical focus of interest in this area, however, is mostly concentrated on aspects of rationality, choice, outcome efficiency, or preference structures, and thus disregards socio-emotional aspects. While providing support for such task-related and structured activities is important, a better understanding of the potential impact and support capabilities of NSSs and DSSs on social behaviors will nevertheless help to improve the quality of these systems (Singh & Ginzberg, 1996). Besides all technological advancements, the behaviors of human negotiators still remain central to the negotiation process (De Moor & Weigand, 2004) as negotiating remains "a complex emotional decision-making process" (Hindriks & Jonker, 2008: 47), even when supported by sophisticated support systems. Put differently, support technology cannot be assumed to eliminate affect from a social interaction process, but to the contrary should be assumed to influence it. Relatedly, it is argued that NSSs and DSSs can improve inter-personal communication, which may result in more socio-emotionally positive communications (Swaab et al., 2004). With respect to this point Kersten (2004) argues that negotiation and decision support may impact affective expressions primarily by interfering with social behaviors and communications related to relationship building, the establishment of trust, or the reduction of social distance. However, it can also be assumed that the support of more task-related activities, such as the offer process, will additionally impact affective communications. With reference to Blascovich (1990) and Blascovich (1992), Feldman (1995a) provides a justification for this assumption and explains that a person's limited cognitive resources are used to asses both internal (originating from within oneself) and external (originating from the environment) stimuli. The more attention an individual pays to either one of these classes of stimuli, the less attention he or she can pay to stimuli of the other class. Since external stimuli are of high importance in negotiations, internal stimuli, such as affective feelings or perceptions, may receive less attention. If a NSS or DSS reduces the cognitive effort with respect to external stimuli for a negotiator, he or she may have more cognitive resources available to address internal stimuli. Thereby a negotiator may reflect more thoroughly about his or her subsequent expressions of affect, which is why NSSs and DSSs can be expected to influence the expression of affect, also when they are specifically designed to rationalize the negotiation process.

C.3.1. From Rationality to Affect

Accordingly, although DSSs are predominantly designed to make the negotiation process more objective and rational for each individual negotiator (Broekens et al., 2010; Bui, 1994; Pommeranz et al., 2009; Swaab et al., 2004), they are likely to also impact socio-emotional aspects of the negotiation process. As already indicated before, the latter are largely not considered in research on NSSs and DSSs. This lack of attention to socio-emotional aspects parallels the early days of research on CMC, where the focus was similarly put on aspects of rationality only (cf. chapter A.3), which over-simplifies or idealizes the effects of NSSs and DSSs. Kersten and Cray (1996), however, note that by focusing on aspects of rationality, these systems could still detect irrational behaviors, which may allow a researcher to make inferences about affective behaviors.

One exception that addresses the limitations of rationality-only driven analyses is research provided by Swaab, Postmes, and Neijens (2004) who highlight the necessity to consider information and social processes jointly when assessing the impact of negotiation and decision support systems. In particular, they argue that whenever NSSs and DSSs are used to reduce complexities by processing and providing information, these complexities should also induce further communication and intensify the social interaction between the negotiators. Consequently, any additional information that is provided to the negotiators may impact the social interaction process via additional communication efforts. This means that a separation of information or support and the social interaction process is mostly of artificial nature and thereby obscures reality. Moreover, since affective behaviors are an inherent part of the social interaction process, they too, should not be disregarded when addressing the impacts of negotiation and decision support. One further exception that deals with the impact of NSSs and DSSs on affect more explicitly is recent work by Broekens, Jonker, and Meyer (2010), who explicate why and when NSSs should be designed to cope with affect. Although their work is of conceptual nature only, they make a good case for the importance of considering affect in such systems. In particular, they argue that affect is an important driving force for the entire negotiation process, including behaviors, preferences, information processing, judgment, and cognition. Thus, they propose the development of "affective negotiation support systems" (abbreviated here as ANSSs), which should help negotiators to better understand and make use of affective expressions. With respect to the latter point, these systems may support their users to express positive or negative affect when necessary or beneficial. Further, Broekens, Jonker, and Meyer (2010) posit that ANSSs may help negotiators to reduce negative affect, such as anger, already at the beginning of a negotiation. Subsequently, these systems may support their users to utilize negative and positive expressions of affect to create and claim value in order to move closer to a potential agreement. Finally, ANSSs can help with the development of a positive relationship between the negotiators and to successfully close the negotiations. Interestingly, such a specialized kind of support was regarded as not very useful in an earlier work by Bui (1994) who, however, notes that NSSs and DSSs may nevertheless impact perceptions of procedural and outcome justice, fairness, as well as satisfaction. Moreover, the author argues that support systems influence more than just analytical aspects in negotiations, as they also impact the atmosphere or climate that the negotiators jointly establish, which also means that NSSs and DSSs may impact the socio-emotional climate of interaction.

C.3.2. The Potential Impacts of Decision Support on Affective Behaviors

More direct evidence on the impact of decision support on affective behaviors is provided by Koeszegi, Srnka, and Pesendorfer (2006). They showed that decision support can increase the use of positive affective behavior, whereas negative affective behavior was not found to be influenced. Recently Schoop, Amelsvoort, Gettinger, Koerner, Koeszegi, and Wijst (2014) found that decision support may, however, increase the use of negative affective behaviors. In the latter study, more sophisticated communication support technologies were used, which may explain the difference in the obtained results. Nevertheless, and also due to these contradictory findings, empirical evidence on the impact of DSSs on affective behaviors still requires more scholarly attention. Besides the two mentioned studies (Koeszegi et al., 2006; Schoop et al., 2014), other pieces of research also provide some general (and sometimes indirect) theoretical and empirical evidence indicating that NSSs and DSSs may impact socio-emotional aspects (Delaney et al., 1997; Foroughi et al., 1995; Kersten, 2004; Thiessen, Loucks, & Stedinger, 1998; Wang, Lim, & Guo, 2010). This latter conclusion is mostly based on findings showing that NSSs and DSSs can increase its users' satisfaction and reduce their negative perception of the negotiation climate (Delaney et al., 1997; Foroughi et al., 1995; Wang et al., 2010). Note that satisfaction can be characterized as discrete emotion or emotional episode (as defined in chapter A.2). Such available pieces of research that (at least partly) address the interconnections of support systems and affect, however, only provide very limited evidence with respect to this aspect. One reason for this shortcoming is that affect or emotions were mostly considered as side issues to be considered. Another reason is that only very general or broad measures of affect were used (e.g., satisfaction, or negotiation climate), mostly comprising a very limited number of emotions. Also, these were usually assessed via post-negotiation questionnaires, which makes an analysis of affective dynamics in and throughout the negotiation process very difficult.

One recently published study by Wang, Lim, and Guo (2010) is almost uniquely focused on the impact of NSSs and DSSs on its users' satisfaction, and generally shows that the negotiation process seems to be more important for satisfaction than the negotiation outcome. Note that satisfaction with the process and the outcome was measured via post-negotiation questionnaires, and thus reflects a static one-point-in-time snapshot. In general it was found that, although the outcome is not unimportant, the way of achieving it is not to be underestimated. The authors motivate this finding by explaining that an individual's satisfaction depends on various factors such as the fulfillment of expectations (Melone, 1990), perceptions of performance (Tse & Wilton, 1988), and evaluations of equity and fairness (Adams, 1963), regarding the NSS and DSS and the process it supports. Since all of these factors concern aspects of the negotiation process, it can be argued that negotiators evaluate their satisfaction (implicitly or explicitly) on a continuous basis. Consequently, the buildup or destruction of satisfaction throughout the negotiation process consumes more time and cognitive resources than the judgment of outcome satisfaction at the end of a negotiation. The resulting implication is that satisfaction with respect to the negotiation process may be more stable and internalized than outcome satisfaction, which may explain why the authors found the perceptions of the negotiation process to be a better predictor of satisfaction than the perceptions of the outcome. Further, the perceived negotiation climate was found to influence satisfaction. Another study by Kersten (2004) found an impact of DSSs on the expressions of affect. Although this aspect was not the major point of interest, and is only addressed with a minor remark, the author found that users having a DSS at their disposal showed more positive emotions. These were further argued to influence the negotiators' relationship positively, to increase trust and rapport, and to decrease the social distance between the negotiators.

On the downside NSSs and DSSs may also produce more problems and related conflicts, as well as induce negative affect. The functions provided by these systems may for example increase the complexity for the negotiators, and the system's predictions regarding the potential outcome may result in more competition or deadlocks (Kersten & Cray, 1996). Additionally, Schoop, Jertila, and List (2003) point to the problem of "over-structuring", which means that DSSs and the information provided by them should not be too complex, such that the system does not control the user but the other way around. Similarly, Vahidov, Chen, and Kersten (2013) caution of the effects of information overload, which may impact negotiation efficiency and effectiveness negatively, because the negotiators may have difficulties to grasp, process, or understand the information provided to them. Moreover, it is argued that the positive effects of NSSs and DSSs depend, at least partly, on the functionalities of these systems (Jain & Solomon, 2000), as well as on the negotiators' abilities to use them (Kersten & Lo, 2003; Pommeranz et al., 2009). These arguments are generally in line with the Technology Acceptance Model (TAM) (Davis, 1986; Davis, Bagozzi, & Warshaw, 1989), which explains that the acceptance of computer technology is determined by the "perceived usefulness and perceived ease of use" (Davis, 1989: 333) of this technology for its user. These characteristics of NSSs and their related degree of acceptance can further influence the negotiators' attitudes toward these systems (Turel et al., 2007), which may impact their behaviors including their expressions of affect. Wang, Lim, and Guo (2010), however, recently showed that perceived usefulness and perceived ease of use of a NSS are not related to satisfaction. Thus, overall, if negotiators perceive NSSs and DSSs to be beneficial, accept these, or adapt to these in line with theories of media adaptation (as outlined in chapter A.3.4), these systems can help their users to improve performance and achieve better outcomes more frequently (Hindriks & Jonker, 2008; Kersten & Lo, 2003; Pommeranz et al., 2009; Wang et al., 2010).

C.4. Research Questions: Part II

All of these aspects acknowledge the call of researchers for a more thorough and nuanced analysis of the impacts of NSSs and DSSs on socio-emotional behaviors of the negotiators (Broekens et al., 2010; Bui, 1994; Kersten, 2004; Koeszegi et al., 2006; Pommeranz et al., 2009; Swaab et al., 2004). In this respect, it is further argued that such an increase of research effort would help to better understand the influence of support on negotiations closer to reality, since negotiations, naturally, are social interactions that are also shaped by affective behaviors (Pommeranz et al., 2009). Relatedly, it is highlighted that inter-personal social processes are also shaped by the form of information presentation or support, which makes the consideration of social aspects an important criterion for the research and design of NSSs and DSSs (Swaab et al., 2004). Moreover, Swaab, Postmes, and Neijens (2004) posit that by addressing impacts on social characteristics of the negotiation process, complexities related to communication efforts can be reduced, which may further facilitate the construction of a shared social climate or identity. In addition, being able to make inferences about the impacts of negotiation support on affective behaviors may allow us to draw conclusions about a negotiator's perceptions of the appropriateness of certain kinds of actions, as well as about his or her motivational orientations, which can further help to asses someone's capabilities, interests, or flexibility (Bui, 1994).

With respect to the present research, it is important to note that NSSs and DSSs can have far ranging effects, also on affective behaviors. They may induce negatively valenced affective behaviors (Schoop et al., 2014), which can result in more competition and/or negotiation breakdown (Bui, 1994; Pruitt & Rubin, 1986). They may be perceived as providing relevant guidance, information, or feedback, which can result in expressions of more positively valenced affect (Koeszegi et al., 2006) and cooperative behaviors (Baron, 1988; Bui, 1994). Also, as outlined before, they may influence cognitive processes and capacities (Blascovich, 1990, 1992), which can turn a negotiator's attention to certain specific emotions, with a potential result being the intensification of either positive or negative affective communications. Consequently, Bui (1994) argues that an analysis of affective expressions can help to approximate the dynamics that shape the negotiation process. Similarly, Broekens, Jonker, and Meyer (2010) posit that NSSs and DSSs could aid negotiators to understand and use emotions more appropriately throughout the negotiation process, such as they "traditionally" do with respect to analytical tasks. In particular, the authors argue that more sophisticated ANSSs may be able to interpret emotions in terms of their signaling functions, which may allow them to identify whether and when positive and negative emotions are destructive or beneficial. This may in turn help negotiators to gain better control over the negotiation process as well as over its outcome by knowing when to claim or create value, for example. Consequently, well designed ANSSs could help to "rationalize" affective expressions by inducing negotiators to reflect more thoroughly and critically about their meaning and usage, and to use them more planned and in a strategic manner (Broekens et al., 2010). Overall, we agree with Broekens, Jonker, and Meyer (2010) that such systems could be of great use, especially in text-based online negotiations. However, more research is needed in order to be able to implement the necessary functionalities.

In sum, we conclude that affective behaviors are important to consider in negotiations and should be when researching and developing NSSs and DSSs (Broekens et al., 2010; Hindriks & Jonker, 2008). This basic argument rests upon two central conclusions, which summarize most of the present work thus far. First, affective behaviors are important drivers for the negotiation process and thus influence it to a large extent, which also translates into an influence on the negotiation outcome. Second, a central aim of DSSs is to improve negotiation outcomes by supporting the negotiation process. Consequently, since affective behaviors have a strong impact on the negotiation process and DSSs intend to support the negotiation process, we believe that the research and design of DSSs should pay more attention to its potential influence on affective expressions or behaviors within and throughout the negotiation process. Interestingly, other researchers draw similar conclusions (Bui, 1994; Kersten & Lai, 2007; Lim & Benbasat, 1992-93; Pommeranz et al., 2009; Turel et al., 2007; Weigand et al., 2003), what we are, however, short of is empirical evidence. Put differently, supporting the negotiation process requires knowledge about the negotiation process, which we still lack to some extent, and in particular regarding affective behaviors. Therefore, one goal of the present research is to advance our understanding of the impacts of DSSs on affective behaviors and expressions in text-based online negotiations, by further addressing the following research questions. Note that these are refinements of RQ1-RQ3, put forth in chapter B.3.

> *RQ4: Do affective behaviors show different patterns of evolvement over time in negotiations with and without a DSS, in successful and failed negotiations?*

> *RQ5: Does the inter-personal synchrony of affective behaviors within negotiation phases differ between negotiations with and without a DSS, in successful and failed negotiations?*

> *RQ6: Do intra-personal and inter-personal effects of affective behaviors over time differ between negotiations with and without a DSS, in successful and failed negotiations?*

PART D – Data, Procedures, Methods, and the Research Framework

The current Part D provides an overview of the data and most important methods of analysis used in the present work. Chapter D.1 introduces the negotiation simulations that were used to collect the data. Chapter D.2 explicates the employed research framework. Chapter D.3 explains how affective behaviors are measured, and Chapter D.4 goes into detail regarding methodological issues with respect to the conceptualization of the procedural dynamics in line with phase modeling. Further, Chapter D.6 introduces the Actor-Partner Interdependence Model (APIM), which is used to investigate intra-personal and inter-personal effects of affective behaviors.

D.1. Procedures and Methods

The data for addressing the previously outlined hypotheses and research questions were collected as part of a larger research project, entitled e-Nego-motion (Mitterhofer, Druckman, Filzmoser, Gettinger, Schoop, & Koeszegi, 2012). The goal of this project was to investigate the influence of different functionalities of a NSS on the process as well as the outcome of the supported negotiations. Data collection for the investigated data set took place in November of 2010 at Tilburg University (The Netherlands), University of Vienna (Austria), Vienna University of Technology (Austria), and University of Hohenheim (Germany). Subsequently, the conducted experiments will we be explained in more detail, including information on the participants, the employed negotiation case, the experimental design as well as procedure.

D.1.1. Negotiation Case

The utilized negotiation case was a joint-venture negotiation between two fictitious companies from Austria and Ukraine, situated in the aviation industry. Participants had to negotiate for either one of these two companies, with the goal being to establish a joint-venture for the production of engines for aircrafts. In total, seven issues had to be negotiated including the share of future revenue, the number of directors in board for each company, whether a secrecy clause would be signed or not, the duration of the contract, the payment of common workers, the compensation of Ukrainian workers, and the court of jurisdiction. The positions of the negotiators on these issues were opposing. Moreover, the entire negotiation case was constructed to be of competitive and conflicting nature, such that the Zone Of Possible Agreements (ZOPA) was rather limited. However, it was possible to negotiate integratively and make integrative offers, as logrolling and trade-offs across the issues were potentially possible. In addition, the negotiators were not required to conclude the negotiation successfully as alternative outcomes were explained.

D.1.2. Experimental Design

The full experimental design is based on four treatments, which are further elaborated by Mitterhofer, Druckman, Filzmoser, Gettinger, Schoop, and Koeszegi (2012). Since the focus of the present work lies on the impact of a “classical” NSS on the dynamics of affective behaviors, we are only focusing our attention on the treatments with and without a DSS, referred to as Analytical Support (AS) by Mitterhofer, Druckman, Filzmoser, Gettinger, Schoop, and Koeszegi (2012). The reasons for doing so are, that decision support is the predominant type of support in NSSs, that such NSSs and DSSs are being employed more widely and frequently, and that, although this is the case, important aspects and effects of these systems are still under-researched (Schoop et al., 2014). With respect to the latter point, Schoop, Amelsvoort, Gettinger, Koerner, Koeszegi, and Wijst (2014) particularly highlight the importance of advancing our knowledge on aspects of communication. This call of attention to communication is naturally related to our call of attention to affective expressions or behaviors, since these are inherent elements of communication, especially when only a text-based communication channel is available. The here proposed analysis of the dynamics of affective behaviors, however, goes beyond a general investigation of communication and is addressed to an even lesser extent by empirical research thus far.

The negotiation system that was used to conduct the negotiations is Negoisst (Schoop et al., 2003), which is an asynchronous NSS accessible via the Internet. It allows negotiators to communicate via natural language by transmitting electronic messages in written form. Negoisst can provide different kinds of support including decision support, communication support, and document management, and can support the user during the pre-negotiation, negotiation, or post-negotiation stage (Dannenmann & Schoop, 2010). Since the current work is interested in the impacts of decision support on affective behaviors throughout the negotiation process, only support during the negotiation stage is relevant for the present analysis.

The basis for decision support is the elicitation of the preferences of a negotiator, which is done in the pre-negotiation stage. Thus, it is important to note that although the present work is not investigating the procedure of preference elicitation, this stage is already relevant for the provision of decision support. After the elicitation of preferences, the DSS can represent these via utility values in a numerical and graphical manner, for each offer that is made (i.e., sent) and received. Note that since the used negotiation case defines a multi-issue negotiation including seven different issues, the utility values are multi-attribute utilities. Moreover, the utility values range between 0 and 1, which makes different offers or offer packages easily comparable. Additionally, the DSS can provide the user with the history of previous offers and counter-offers, which allows one to examine the negotiation progress in line with one’s own preferences.

The communication support provided by Negoisst involves support on three levels, the syntactical, semantic, and pragmatic levels. Syntactic-level support is aimed at structuring the negotiation process, by only allowing negotiators to communicate and make offers in alternation, and by preventing alterations of already transmitted offers and messages. Semantic-level support should foster the common and joint understanding between the interactants by providing definitions of the issues under negotiation and terms used. Pragmatic-level support enables the negotiators to define each of their messages as offer or question, which can help to indicate one's intention to the opponent. Overall, it is argued that this provision of communication support may influence the quality of communication, trust, satisfaction, as well as the outcome positively (Schoop et al., 2014).

Support in the form of document management is intended to store and pre-process any kind of information entered into system. In this respect the system can compile contracts automatically, based on the previous offers transmitted by the negotiators. The automatic storage of information on a neutral server increases the security of the system, and further ensures that negotiators can count on having proof of what they or their opponent offered or said. For a more detailed description and some screenshots of the entire system and its potential abilities the interested reader is further referred to Schoop, Jertila, and List (2003), Schoop (2010), and Mitterhofer, Druckman, Filzmoser, Gettinger, Schoop, and Koeszegi (2012).

While the present work is interested in the first type of support, that is, decision support, the system also provided the latter two types of support to the negotiators in the conducted experiments. In this respect it is important to note that these latter types of support are mostly used to improve usability and facilitate the interaction process, whereas decision support provides analytical guidance and decision aid. One important element of communication support for the present research was syntactic-level support, which ensured that messages could only be sent alternating. If this would not have been the case, it would have been difficult to investigate effects of inter-personal influence or synchrony, for example. Further, semantic-level support, ensuring a common and joint understanding of issues and terms discussed, helps to reduce or rule out socio-emotional expressions of conflict, misunderstanding, or incomprehension due to these aspects. Moreover, the automatic storage of information is a safeguard mechanism rather than a constant source of interference.

D.1.3. Participants

As already noted, the participants for the experiments were recruited from negotiation courses at four different universities in three European countries. Participation in the experiments contributed to the overall amount of course credits and thus had an influence on the final grade. This compensation for participation, however, was unrelated to the outcome that was achieved in the negotiation experiments. Table 1 shows descriptive statistics about the participants that contributed to the data, which was used in the present work.

Table 1
Descriptive Statistics (Participants)

	N	Missing values	Mean	Median	Std. dev.	Min.	Max.
Gender	114	19	1.44	1.00	0.5	1	2
Age	114	19	25.29	25	3.21	22	46
English knowledge	114	19	3.91	4	0.73	2	5
Negotiation experience	114	19	2.59	3	0.89	1	5

In total the present work is based on input from 114 participants from the beforehand mentioned universities in Austria and The Netherlands. From these, 95 supplied information about their gender, age, English knowledge, and negotiation experience. Gender was coded as 1 (female) and 2 (male). With respect to this variable, descriptive statistics show that men and women are represented almost equally. Mean age was 25.29, ranging from 22 to 46 years of age. English knowledge and negotiation experience are based on self-assessments of the participants, and were measured using a 5 point Likert scale, with 1 indicating no knowledge or experience, and 5 indicating perfect knowledge or experience. Here descriptive statistics show that participants, on average, have a fairly good knowledge of English, which is important since the negotiations were conducted in English. Finally, negotiation experience of the participants, on average, was neither very high nor low at the time of the conducted experiment. With respect to nationality, most of the participants were from The Netherlands (45%) and Austria (23%). The remaining nationalities include Finland (4%), Hungary (4%), Italy (3%), Sweden (3%), Bulgaria (2%), France (2%), Belarus, Bosnia and Herzegovina, China, Egypt, Iceland, Iraq, Poland, Portugal, Romania, Russia, Slovakia, and Suriname. The latter, if not indicated otherwise, each represent 1% of the participants. Also note that all percentages were rounded.

D.1.4. Procedure

Since all participants were recruited from negotiation courses, the course instructors had the possibility to easily brief the participants one week before the experiment was conducted. After the introduction to the system, the participants received test logins in order to familiarize themselves with Negoisst and its functionalities. The documents summarizing and explaining the negotiation case were sent to the participants by email, one day prior to the start of the negotiations. These documents consisted of general information about the negotiation case, which was available to all negotiators, as well as private information, which differed by role type (i.e., the two companies on behalf of which the participants had to negotiate). After the participants logged in for the first time, once the actual negotiation experiments started, they had to answer several control questions in order to ensure that they correctly understood the information they were provided regarding the negotiation case and their positions, as well as to make sure that they were able to use Negoisst properly. Subsequently, a pre-negotiation questionnaire had to be filled out, which collected demographic information, as well as information about negotiation experience and English language skills. The participants had a maximum of two weeks to finalize the negotiations. Prior negotiation conclusion or termination was also possible. After the negotiations were completed, the participants had to respond to a post-negotiation questionnaire. Also note that each negotiation dyad was composed of students from different universities, to ensure that participants did not know each other, as well as communicate with each other outside of the NSS.

Since the discussed experiments were conducted for a larger research project, several interesting findings, based on the data set used in the present research, were already published. Mitterhofer, Druckman, Filzmoser, Gettinger, Schoop, and Koeszegi (2012), for example, found that decision support does not impact the quality of agreements, but does impact the agreement rate (calculated as the number of successful over failed negotiations), and the contract imbalance (calculated as the absolute difference between the two negotiators' utility values at the time of agreement), negatively. In addition, decision support was found to influence the satisfaction of the negotiators regarding the negotiation process, its outcome, as well as social aspects of the negotiation. In particular, when compared to negotiations without decision support, negotiators having a DSS at their disposal are less satisfied with the outcome and social aspects, but more satisfied with the negotiation process. With respect to social aspects, which refer to trust and relational characteristics, the authors argue that in negotiations without a DSS the negotiators paid more attention to these aspects since they were more undirected. It may, however, also be that the exact knowledge about one's own utility values (i.e., knowing exactly how well one is doing) impacts satisfaction negatively. This explanation may similarly also apply to the case of outcome satisfaction. The positive impact of decision support on negotiation process satisfaction may be explained by the reduction of cognitive effort as well as the increased simplicity to judge and evaluate one's performance throughout the negotiation process. Overall, the results may allow us to conclude that decision support could influence socio-emotional aspects during the negotiation process, which also leads the authors to conclude that such aspects warrant further attention. Vetschera and Filzmoser (2012) further found that negotiators destroy value toward the end of a negotiation, which is an interesting finding, because the opposite might be expected. This effect could also be explained by affective behaviors, and should thus be investigated further. Finally, Schoop, Amelsvoort, Gettinger, Koerner, Koeszegi, and Wijst (2014) provide some more evidence regarding the impacts of decision support. For example, they found that negotiators using the DSS, in sum communicated more (e.g., about relational issues or the negotiation process), focused more on the relationship with their opponent, behaved more integratively, or reported to be more satisfied with social aspects, after the negotiation. Moreover, they found no effects of decision support on negotiation success, joint utility, contract balance, post-negotiation outcome satisfaction, or post-negotiation process satisfaction. Again, this study seems to indicate that decision support may have important effects on socio-emotional aspects during the negotiation process.

D.2. Research Framework

To investigate the dynamics of affective behaviors in text-based online negotiations, their impacts on negotiation success or failure, and the impact of decision support on these, the present work employs a research framework that is comprised of different levels of analysis. The theoretical foundations for using such a multi-level framework are provided in part B, and explained by the different effects that contribute to the dynamics of affective behaviors. Based on these, the present section provides a comprehensive and integrative overview of the research framework to be employed and provides an interconnection to, and overview of, the methods to be used. Figure 1 depicts a summary of the effects to be investigated, and hence of the multi-level research framework. “Affect A” and “Affect B”, denote the affective behaviors of two negotiators.

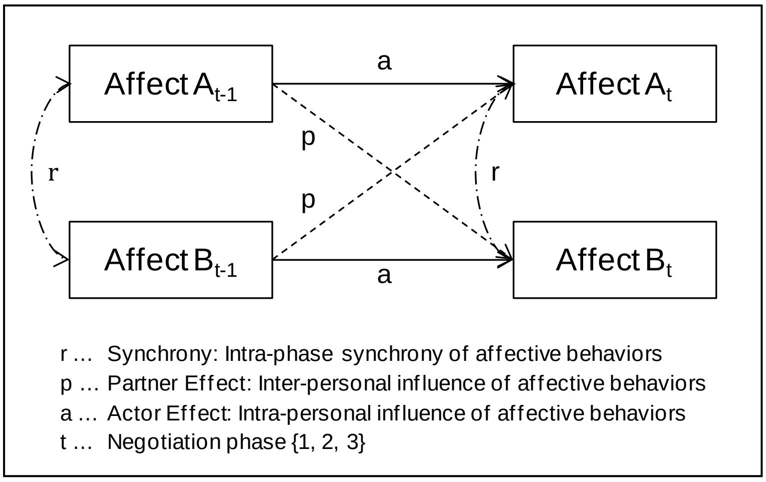

Figure 1. Summary of effects of affective behaviors to be analyzed.

First, the procedural dynamics (outlined theoretically in chapter B.2.4) allow us to investigate dynamics over time (i.e., patterns of evolvement or change), within and throughout the negotiation process. These are addressed and incorporated into our analyses with the use of phase modeling (outlined further in chapter D.4). Accordingly, we investigate whether affective behaviors change from one phase (or more formally “phase t-1”) to a subsequent phase (or more formally “phase t”), whether the synchrony of affective behaviors differs between phases, and whether affective behaviors in phase t-1 impact affective behaviors in phase t. These potential effects to be addressed are indicated by the arrows in Figure 1.

The potential changes of affective behaviors from one phase to another, that is, the evolvement patterns of affective behaviors over the negotiation process (described by three negotiation phases), are assessed at the dyad-level average. The dyad level averages of affective behaviors are calculated as the average (i.e., mean value) of the scores of both dyad members (i.e., negotiators). Examining these allows us to investigate whether affective behaviors change over time (i.e., from one negotiation phase to another), and if so in which direction. Put differently, we examine changes of the average affective climate. Note that these potential changes are assessed at the dyad-level average and not on individual levels (i.e., for each negotiator) since we treat the negotiators as indistinguishable (as further explained in chapter D.5).

The synchrony of affective behaviors at the inter-personal level (outlined theoretically in chapter B.2.2) is denoted as “r” (since it is assessed via correlation coefficients, as further explained in chapter E.3) in Figure 1, and is assessed for each negotiation phase. Hence, we examine whether the synchrony of the affective behaviors of the negotiators changes over time, or differs at different time points in the negotiation process. In particular, the investigation of whether or not, and to what extent, affective behaviors are in sync is based on Intraclass Correlation Coefficients (ICCs) (explained further in chapter E.3). These need to be used since we treat the negotiators as indistinguishable (as further explained in chapter D.5).

The effects of the influence of affective behaviors in one phase on affective behaviors in a subsequent phase at the intra-personal and inter-personal levels (outlined theoretically in the chapters B.2.1 and B.2.2), are denoted as “a” and “p”, which summarize actor effects and partner effects, respectively. Consequently, we assess the impacts of a negotiator’s own affective behaviors in one phase on his or her affective behaviors in a subsequent phase, as well as of a negotiation partner’s affective behaviors in one phase on the focal negotiator’s affective behaviors in a subsequent phase. This is done in line with the Actor-Partner Interdependence Model (APIM), which is outlined further in chapter D.6.

Before the here mentioned methods of analysis are explained in more detail we will, however, turn our attention to the elicitation of affective behaviors in the subsequent chapter D.3. In order to interpret text-based negotiation messages in terms of their affective content (i.e., in terms of expressed affect) these are analyzed in line with the dimensional perspective of affect (as outlined theoretically in chapter A.2.2). The method employed to do so is Multidimensional Scaling (MDS) (explained further in chapter D.3.4.a).

D.3. Elicitating Affect

For the analysis of affective expressions and behaviors, the present work relies on text-based negotiations (cf. chapter A.3.7). Thus, the elicitation of affective behaviors is based on text, which carries and is shaped by affect (Cowie & Cornelius, 2003). With respect to the issue of defining affect and affective behaviors, it is argued that the analysis of affect in conversational settings should be based on a dimensional perspective of affect (as outlined in chapter A.2), since such a perspective is not based on a strict classification of affect and allows to asses emotions as well as emotion-related states (Burgoon & Hale, 1984; Cowie & Cornelius, 2003). The possibility and advantage of using a dimensional perspective of affect in such settings is highlighted by Burgoon and Hale (1984) and, for example, demonstrated by Forsyth, Kushner, and Forsyth (1981) or Griessmair and Koeszegi (2009). With respect to the issue of methodology, it is important to be able to capture affective behaviors or expressions with enough precision such that they can be analyzed meaningfully, as well as in a consistent manner (Cowie & Cornelius, 2003). Consequently, the theoretical issue of defining affective expressions and behaviors and the methodological issue of elicitating and analyzing these are interrelated, as we need proper methods to investigate affective behaviors in an adequate way, in text-based conversational settings.

Frijda (2009), moreover, cautions not to put too much emphasis on words, that is, distinct and specific emotional categories, since defining and analyzing affect in this respect may not fit and benefit the analysis of affective behaviors. Correspondingly, he argues that efforts to explain affect in terms of precisely defined emotional categories may not allow us to clearly and satisfactorily describe affective behaviors, since people do not act based on categorical schemes and may not even need, or be able, to precisely plan or describe their affective behaviors. Nevertheless, recognizing and analyzing affective behaviors requires some structure, which should, however, be chosen such that it does not unnecessarily confine our understanding of what we intend to explain. Relatedly, Russell (1980) points out that, irrespective of the data that we use, the analysis of affect and affective behaviors is but an interpretation of the underlying information, which also means that theory and methodology need to be chosen properly and should be well aligned. This is one important reason why the present research relies on a dimensional perspective of affect, and in particular largely on the circumplex model of affect (Russell, 1980).

D.3.1. The Elicitation of Affect Based on the Circumplex Model of Affect

One important aspect of the circumplex model of affect (Russell, 1980) is that it can highlight the most preeminent aspects of affective behaviors (Larsen & Diener, 1992) in a rather simple, and thus easy to grasp, structure. As already briefly raised in chapter A.2.2, this structure is basically defined by two bipolar affective dimensions, a valence dimension (i.e., pleasure vs. displeasure) as well as a degree of activation dimension (Barrett & Russell, 1998; Russell, 1980; Russell & Barrett, 1999). Note that initially the dimensions of the circumplex model of affect were denominated as pleasure-misery and arousal-sleepiness (Russell, 1980). Later these were updated to pleasant-unpleasant (or pleasure-displeasure) and activation-deactivation (Barrett & Russell, 1998; Russell, 2003; Russell & Barrett, 1999).

These two dimensions were consistently shown to enable people to think about, explain, and represent affective experiences and expressions (Feldman, 1995a). Often the arousal or activation dimension was omitted altogether (Daly et al., 1983), based on the argument that states of activation are not related to emotions (Barrett & Russell, 1998; Frijda, 1988; Ortony et al., 1988). This is, however, problematic since affective states of positive and negative valence are also found to be differentiable by intensity (Bush, II, 1973; Neufeld, 1975; Russell, 1978, 1979; Russell & Mehrabian, 1977). In this respect Barrett and Russell (1998) explain that elated or thrilled are considered positively valenced terms implying activation, serene or calm are considered positively valenced terms implying deactivation, upset or distressed are considered negatively valenced terms implying activation, and lethargic or depressed are considered negatively valenced terms implying deactivation. Likewise, affective states of high or low activation are also differentiable by valence, since thrilled or excited are considered activated terms of positive valence, tense or jittery are considered activated terms of negative valence, relaxed or calm are considered deactivated terms of positive valence, and down or lethargic are considered deactivated terms of negative valence (Barrett & Russell, 1998). Consequently, it is argued that the dimensional structure of affect and in particular "all affective stimuli (i.e., emotion-related language; facial expressions of emotion; emotional episodes such as anger, sadness, and fear; and non-emotional affective states like fatigue, sleepiness, and placidity) can be characterized as combinations of these two independent dimensions" (Barrett, 2004: 267). This further means that affective stimuli fall "around the perimeter of the [two-dimensional] space" (Russell, 1979: 354) in a meaningful and ordered manner (Larsen & Diener, 1992; Russell, 1979), and thereby constitute and depict a circular form, also referred to as a circumplex (Russell, 1980; Seo et al., 2008). Seo, Feldman Barrett, and Jin (2008) further summarize that, although a circumplex structure is not a precondition for describing and explaining affective stimuli based on valence and activation dimensions (Reisenzein, 1994), these nonetheless typically describe a circumplex pattern (Remington, Fabrigar, & Visser, 2000). Emotions and emotion-related states are thus found at distinct points around the circumplex in a heterogeneous, yet systematic, manner (Daly et al., 1983; Seo et al., 2008). In that sense a circumplex structure of affect is said to lack simple structure, since affective stimuli do not simply aggregate or cluster together in the two-dimensional space (Barrett & Russell, 1999; Larsen & Diener, 1992), but are spread out around the two-dimensions that underlie the circumplex structure of affect. This further indicates that most of these dimensions are not pure or overly precise characterizations of emotions or emotion-related states (Watson & Tellegen, 1985). Nevertheless, all affective stimuli that define and shape the affective space can be assessed and measured according to their respective similarities, even if they are very similar to each other (Larsen & Diener, 1992).

The similarity of emotions or emotion-related states can be inferred from their position in the affective space and the proximity of their respective positions (Barrett, 2004; Larsen & Diener, 1992). Thus, the relative positions of affective stimuli relate to qualitative, descriptive, and interpretative distinctions of these (Barrett, 2004; Larsen, McGraw, & Cacioppo, 2001). For example, happy and surprised are usually found to be independent (i.e., about 90° apart, in terms of arc distance), happy and sad are usually found to be affective opposites or counter-poles (i.e., about 180° apart), or happy and glad are usually found to be very similar (i.e., about 0° apart) (Barrett, 2004; Russell, 1980). These structural properties, which permit us to explain affective stimuli in relation to each other, enable us to represent these by interrelated affective dimensions that describe emotions and emotion-related states in a circular order (Russell, 1980). Exemplary graphical representations of affective words falling around the two-dimensional valence and activation space, as well as of a prototypical representation and dimensional description of the circumplex model of affect, can for example be found in Russell (1980) or Russell and Barrett (1999). The latter is also shown in Figure 2, which depicts the simple prototypical circumplex model of affect introduced by Russell (1980).

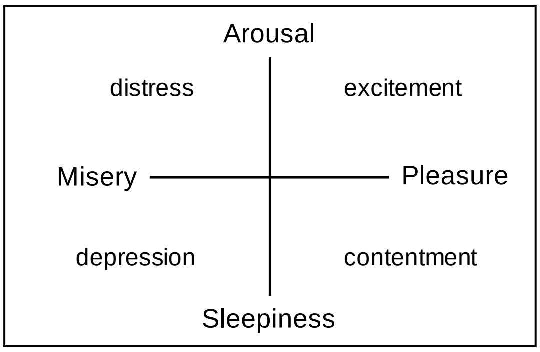

Figure 2. Prototypical circumplex model of affect. Adapted from Russell (1980).

Two central aspects of the circumplex model of affect, which are also responsible for a long history of confusion and disagreement, are the issues of dimensional independence and bipolarity (Barrett & Russell, 1998). As Barrett and Russell (1998) summarize, although the initial assumption of dimensional bipolarity (Reisenzein, 1992; Wundt, 1912) was subsequently largely given up in favor of the assumptions of dimensional independence (Borgatta, 1961; Bradburn, 1969; Cacioppo & Berntson, 1994; McNair & Lorr, 1964; Nowlis, 1965; Thayer, 1967; Watson et al., 1988; Watson & Tellegen, 1985), some researchers still provided arguments supporting bipolarity (Diener & Emmons, 1984; Green et al., 1993; Larsen & Diener, 1992; Meddis, 1972; Russell, 1979; Russell & Mehrabian, 1977). For a more elaborate discussion of this issue from a historical perspective, the interested reader is referred to Barrett and Russell (1998). Importantly, the authors further clarify that the circumplex model of affect supports and reconciles both assumptions. In particular, valence is considered to be independent from activation, since these two dimensions lie at a 90° angle to each other. Nevertheless, each of these dimensions is, by itself, considered to be bipolar, since pleasure (located at 0° in the circumplex model of affect) is considered to be the bipolar opposite of displeasure (located at 180° in the circumplex model of affect), which similarly holds for activation (90°) and its opposite pole of deactivation (270°) (Russell, 1980).

Moreover, the circumplex model of affect and its underlying structure, which is based on the two dimensions of valence and activation, “is highly robust and emerges whenever individuals label or communicate their own or others’ affective experiences” (Barrett & Fossum, 2001: 334). As summarized by Barrett and Fossum (2001) and Seo, Feldman Barrett, and Jin (2008), such a structure was for example frequently shown to emerge for similarity judgments of affective stimuli (Barrett, 2004; Barrett & Fossum, 2001; Bush, II, 1973; Feldman, 1995a; Russell, 1980; Seo et al., 2008), based on observed data (Abelson & Sermat, 1962; Adolphs, Tranel, Damasio, & Damasio, 1994; Green & Cliff, 1975; Russell & Bullock, 1985; Schlosberg, 1952, 1954), as well as self-report data (Barrett, 1998, 2004; Barrett & Russell, 1998, Feldman, 1995a, 1995b; Reisenzein, 1994; Russell, 1978, 1980). Also, similar circumplex structures were found across cultures (Larsen & Diener, 1992; Russell, 1983, 1991; Russell, Lewicka, & Niit, 1989a; Sjöberg et al., 1979; Watson et al., 1988), and age groups (Russell & Bullock, 1985; Russell & Ridgeway, 1983).

In addition, it was shown that the dimensions of valence and activation explain a major proportion of the variance (up to about three-fourths) of the underlying data (Daly et al., 1983; Larsen & Diener, 1992; Russell, 1980; Seo et al., 2008; Watson & Tellegen, 1985; Yik, Russell, Ahn, Fernández-Dols, & Suzuki, 2002; Yik et al., 2011), which also indicates that the circumplex model of affect is a suitable model for the analysis of affective stimuli. The remaining variance is argued to be accounted for by measurement errors, non-affective factors, or issues related to the treatment (such as labeling) of affective stimuli (Russell, 1980).

One point of criticism that emerged around the circumplex model of affect addresses the relation of affective stimuli with the affective dimensions, since emotions as well as emotion-related states cannot be precisely distinguished by clearly distinct categories (Feldman, 1995a). This issue is similarly justified and defended by researchers arguing in favor of discrete perspectives of emotions or affect, and sometimes refined by the argument that the aspect of action readiness is unaccounted for in the circumplex model of affect (Larsen & Diener, 1992). Furthermore, it was argued that the model is incomplete, as it "only" relies on two affective dimensions (Feldman, 1995a; Larsen & Diener, 1992; Russell, 1979). The evidence, summarized and presented above (as well as in chapter A.2), however, mitigates the points of criticism that were raised and justifies the use of the circumplex model of affect. Also the model should not be considered as a holistic, complete, and overly precise concept of affect, but rather as a basic, yet powerful, way to structure and analyze affective stimuli (Larsen & Diener, 1992; Watson et al., 1999). Put differently, it can be considered as a useful heuristic that may help researchers to "gain a more complete picture of the full range of emotional experiences across individuals" (Larsen & Diener, 1992: 50).

D.3.2. The Elicitation of Affect Based on the Model of Negative Activation (NA) and Positive Activation (PA)

The circumplex model of affect (Russell, 1980) is but one interpretation of the two-dimensional space that is and can be used to describe affective stimuli (i.e., emotions and emotion-related states) theoretically and upon which the elicitation of affect may be based methodologically. Another such important and widely used interpretation is the model of Negative Activation (NA) and Positive Activation (PA) (Watson et al., 1988; Watson & Tellegen, 1985; Watson et al., 1999). This model is based on the circumplex model of affect but posits that the two-dimensional affective space is best described by two different affective dimensions, which are positioned in different regions of the two-dimensional affective space. Initially these dimensions were labeled Negative Affect (NA) and Positive Affect (PA) (Watson et al., 1988; Watson & Tellegen, 1985), but were later refined to Negative Activation (NA) and Positive Activation (PA) (Watson et al., 1999). Since these differently labeled dimensions (in comparison to the circumplex model of affect) describe the same affective space as the model proposed by Russell (1980), the model of NA and PA is but a rotational variant of the circumplex model of affect. This is displayed graphically in Figure 3, which shows how both models relate to each other in the same affective space. Solid lines indicate the affective dimensions that are considered as primary by each model. For example, we observe that the "High Positive Affect" pole in the right figure, which indicates a primary dimension in the model put forth by Watson and Tellegen (1985), corresponds to the "excitement" pole in the left figure, which indicates a secondary dimension in the model put forth by Russell (1980).

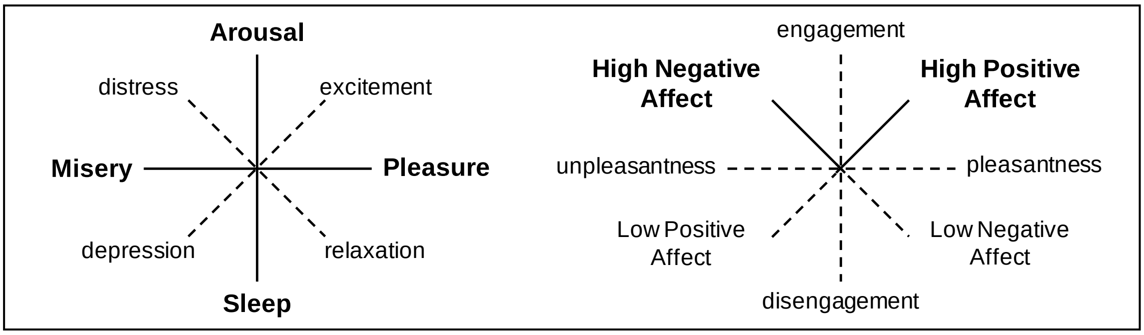

Figure 3. On the left, the two-dimensional structure of affect from Russell (1980). On the right, the two-dimensional structure of affect from Watson and Tellegen (1985). Reprinted from Russell and Barrett (1999).

More generally, any rotational variant that is used to explain the two-dimensional affective space, still is a combination of the valence and activation dimensions that define the circumplex model of affect (Feldman, 1995a; Russell, 1980; Watson & Tellegen, 1985). In this respect Watson and Tellegen (1985) also talk about the compatibility of structures. To arrive at the NA and PA dimensions from the valence and activation dimensions, the latter are usually rotated orthogonally by using a varimax rotation (Watson & Tellegen, 1985). Doing so orients the main axes (i.e., dimensions) "toward large clusters of variables" (Watson & Tellegen, 1985: 232). The underlying presumption of this rotation is that the density of affective stimuli is comparably high at the poles of the NA and PA dimensions (Watson & Tellegen, 1985; Watson et al., 1999). This aspect also provides a theoretical justification for using the NA and PA dimensions instead of the valence and activation dimensions, since more populated areas may provide more information that may be of interest to the researcher (Watson et al., 1999). In addition, and relatedly, it is argued that the dimensions of NA and PA are highly robust and consistently come up as primary axes for describing the two-dimensional affective space (Watson & Tellegen, 1985). Most of the structural characteristics that describe the circumplex model of affect are similarly true for the model of NA and PA. For example, the model proposed by Watson and Tellegen (1985) is also based on a circular and ordered structure of affective stimuli, which spread out in the two-dimensional affective space, around the perimeter of this space (Larsen et al., 2001; Watson & Tellegen, 1985). Each affective stimulus is thus either more or less closely related to other affective stimuli and contributes to a description of the affective dimensions and their boundaries (Watson & Tellegen, 1985).

When relying on the dimensions of NA and PA, instead of valence and activation, to describe the affective space, one important distinction results from the different interpretation or definition of these dimensions. In particular, although both models are generally based on two affective dimensions, the dimensions of NA and PA are explained to be "descriptively bipolar but affectively unipolar" (Zevon & Tellegen, 1982: 112). This characteristic of the NA and PA dimensions becomes apparent in Figure 3 (by inspecting the solid lines in the right-hand graph) and also by further describing and defining these dimensions in relation to the dimensions of valence and activation. Importantly, these dimensions are not characterized by opposing poles but are related to each other orthogonally (Green et al., 1993; Larsen et al., 2001). Consequently, NA does not reflect the negatively valenced pole (i.e., displeasure), and PA does not reflect the positively valenced pole (i.e., pleasure) of the circumplex model of affect by Russell (1980), but the 45° rotated dimensional pole of this model (Larsen & Diener, 1992). Thus, the high loading end of NA is described by affective stimuli that fall in between the dimensional poles of displeasure and activation of the circumplex model of affect, and the prolonged low loading end of NA would describe affective stimuli that fall in between the dimensional poles of pleasure and deactivation of the circumplex model of affect. The high loading end of PA is described by affective stimuli that fall in between the dimensional poles of pleasure and activation of the circumplex model of affect, and the prolonged low loading end of PA would describe affective stimuli that fall in between the dimensional poles of displeasure and deactivation of the circumplex model of affect. In short, the high loading ends of each of the dimensions, NA and PA, are described by affective states of negatively valenced or positively valenced high activation, respectively. In contrast, the prolonged low loading ends of NA and PA would describe affective states of positively valenced or negatively valenced low activation, respectively. This property of the NA and PA dimensions, that the low loading end of NA is described by positively valenced affect and that the low loading end of PA is described by negatively valenced affect (which may seem counter-intuitive to the labeling of these dimensions), explains what is meant by "descriptively bipolar but affectively unipolar" (Zevon & Tellegen, 1982: 112). More specific examples for affective stimuli that are represented by the poles of each of these dimensions would be hostile for high NA, relaxed for low NA, enthusiastic for high PA, and dull for low PA, (Watson et al., 1999). Sad as related to the displeasure pole of the valence dimension falls in between high NA and low PA, happy as related to the pleasure pole of the valence dimension falls in between low NA and high PA, aroused as related to the activated pole of the degree of activation dimension falls in between high NA and high PA, or tired as related to the deactivated pole of the degree of activation dimension falls in between low NA and low PA (Russell, 1980; Watson et al., 1999).

D.3.3. Which Dimensional Model of Affect Should the Elicitation of Affect be Based on?

Besides explaining different dimensional models of affect, the above discussion also accentuates that neither the circumplex model of affect (Barrett & Russell, 1998; Russell, 1980; Russell & Barrett, 1999), nor the model of Negative Activation (NA) and Positive Activation (PA) (Watson et al., 1988; Watson & Tellegen, 1985; Watson et al., 1999), is and can be more "primary" (Larsen & Diener, 1992: 35) or "basic" (Watson et al., 1999: 828) than the other, since both models are rotational variants of each other, and because "a true circumplex, by definition, lacks simple structure" (Larsen & Diener, 1992: 35). Hence, mathematically, both models are identical as neither explains more variance than the other

(Larsen & Diener, 1992; Seo et al., 2008). This also means that the number of potential rotations of the affective dimensions (i.e., axes) is close to infinite, since any rotational structure will account for the same amount of variance and will be mathematically justifiable (Larsen & Diener, 1992). Nevertheless, or because of this aspect, some researchers call for an integration of dimensional models of affect (Barrett & Russell, 1998; Feldman, 1995a; Yik et al., 1999), in particular of the models described above by Russell (1980) and Watson and Tellegen (1985), as well as the dimensions of tense and energetic arousal proposed by Thayer (1989), and the dimensions of unpleasant vs. pleasant and high activation vs. low activation proposed by Larsen and Diener (1992) (Yik et al., 1999). Such an integration additionally includes properties of structures and concepts put forth by other scholars that contribute to the development of dimensional models of affect (Barrett & Russell, 1998; Feldman, 1995b; Green et al., 1993; Lang, Greenwald, Bradley, & Hamm, 1993; Reisenzein, 1994; Tellegen, Watson, & Clark, 1994).

The basic assumption for such an integration (as well as about the two-dimensional representation of emotions and emotion-related states) is that every affective stimulus can be described by a combination of valence and activation, which are both bipolar dimensions (Barrett & Russell, 1998). Hence, the basis for an integrated dimensional model of affect is the circumplex model of affect proposed by Russell (1980) in its refined form (Barrett & Russell, 1998). The dimensions of affect put forth by Larsen and Diener (1992) are found to be equivalent to those of the circumplex model of affect (Yik et al., 1999). Further, the dimensions of NA and PA proposed by Watson and Tellegen (1985) are explained by the dimensions of valence and activation, as discussed above, and as empirically shown (Barrett & Russell, 1998; Yik et al., 1999). Yik, Russell, and Feldman Barrett (1999) also explain that these dimensions "fit" into an integrated model or structure, since they were shown to be bipolar, explain enough variance in the underlying data, and can be meaningfully integrated. Similarly, the dimensions of tense and energetic arousal proposed by Thayer (1989) "fit" into such an integrated structure, as these are descriptively equivalent to those proposed by Watson and Tellegen (1985), although labeled differently (Larsen & Diener, 1992; Yik et al., 1999). Figure 4 shows the four different conceptualizations of the affective space (Larsen & Diener, 1992; Russell, 1980; Thayer, 1989; Watson & Tellegen, 1985) independently, and Figure 5 shows the integrated structure as proposed by Yik, Russell, and Feldman Barrett (1999). The authors further highlight that the integrated structure, depicted in Figure 5, incorporates the four structures summarized in Figure 4, as well as aspects proposed by other authors (Feldman, 1995b; Green et al., 1993; Lang, 1994; Plutchik, 1962; Reisenzein, 1994; Schlosberg, 1952, 1954).

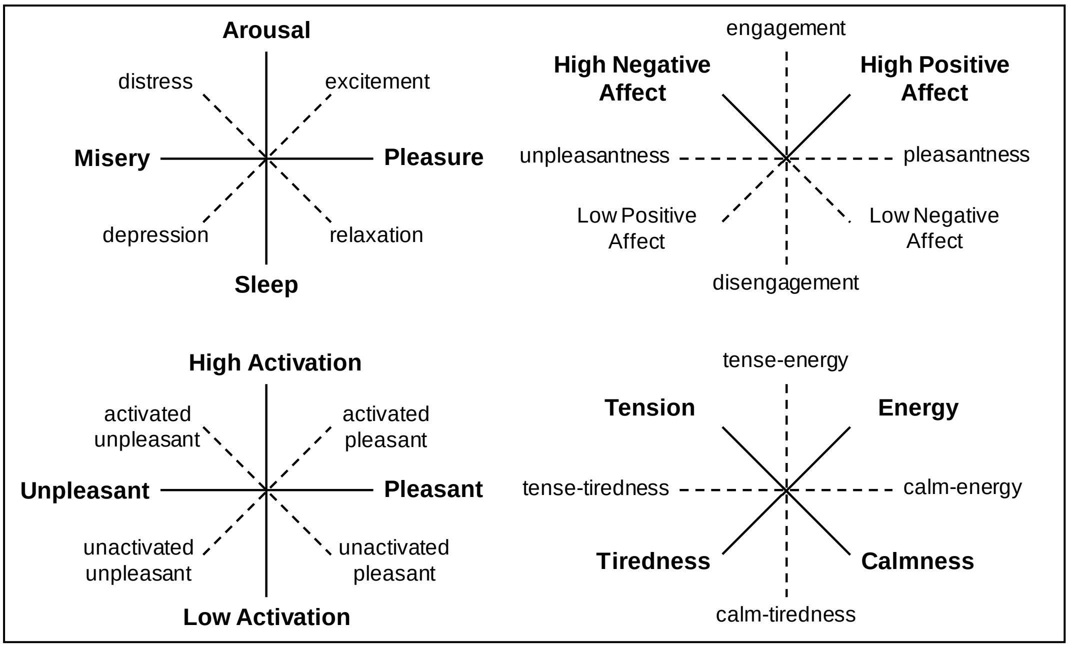

Figure 4. Top-left, the two-dimensional structure of affect from Russell (1980). Top-right, the two-dimensional structure of affect from Watson and Tellegen (1985). Lower-left, the two-dimensional structure of affect from Larsen and Diener (1992). Lower-right the two-dimensional structure of affect from Thayer (1989). Reprinted from Russell and Barrett (1999).

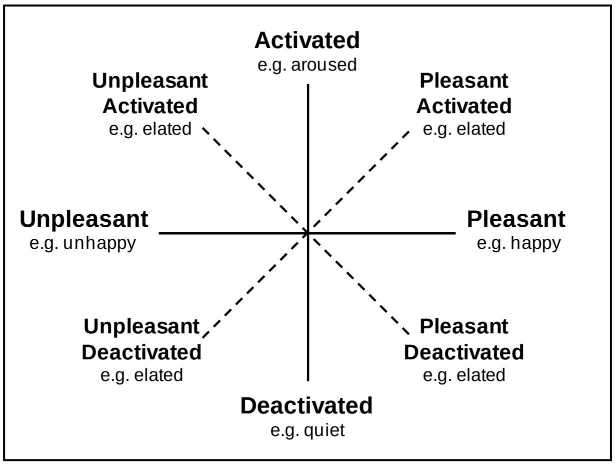

Figure 5. Integrated two-dimensional structure of affect. Adapted from Yik, Russell, and Feldman Barrett (1999).

To summarize, the horizontal or first axis (i.e., dimension) is consistently identified and denominated as dimension of pleasure and displeasure (Larsen & Diener, 1992; Russell, 1980; Watson & Tellegen, 1985). The label proposed by Thayer (1989), calm-energy and tense-tiredness, is argued to be too imprecise to capture and explain affective stimuli that lie close to this dimension (Yik et al., 1999). The vertical or second axis (i.e., dimension) can be shown to be consistently identified and denominated as dimension of activation and deactivation (Larsen & Diener, 1992; Russell, 1980; Thayer, 1989). Here, Yik, Russell, and Feldman Barrett (1999) point out that this set of labels can be inferred from the conceptualization proposed by Thayer (1989), but also that the dimensional denomination of engagement and disengagement proposed by Watson and Tellegen (1985) is too vague or imprecise. With respect to the interpretation and denomination of the diagonal, that is, the 45° rotated axes (i.e., dimensions), Yik, Russell, and Feldman Barrett (1999) propose to follow Larsen and Diener (1992) and their labels (activated pleasant vs. unactivated unpleasant, and activated unpleasant vs. unactivated pleasant), which are basically combinations of the dimensional labels of the two primary axes (i.e., pleasure and displeasure, as well as activation and deactivation). The proposed labels suggested by Russell (1980) and Thayer (1989) are argued to be "too narrow", while those suggested by Watson and Tellegen (1985) are argued to be "too broad" (Yik et al., 1999). Moreover, it is pointed out by Yik, Russell, and Feldman Barrett (1999) that although some original labels of the affective dimensions proposed by diverse authors differ, they nevertheless describe the same concepts and dimensions. Also, past inconsistencies, with respect to the integration of different dimensional models of affect via rotation, are shown to be a result of measurement error rather than incompatibility (Green et al., 1993; Yik et al., 1999).

Furthermore, developing and utilizing an integrated model or structure for the dimensional representation and analysis of affective stimuli helps to address, allay, and resolve concerns that were and still are raised and discussed in this context (Barrett & Russell, 1998; Yik et al., 1999). Concerns regarding the necessary number of dimensions that are required to appropriately explain all or most affective stimuli may be mitigated, since a number of researchers were able to consistently show that a two-dimensional model of affect provides an adequate way to explain affective stimuli. Concerns regarding dimensional bipolarity and independence are mitigated, since a two-dimensional model of affect incorporates these issues as the dimensions are independent from each other but bipolar each. Concerns whether the affective space is explained by a simple structure or by a circumplex structure are mitigated, since the potentially infinite number of possible rotations of the two affective dimensions provides a strong argument in favor of a circumplex structure. Concerns regarding the most appropriate and standard rotation of the axes (i.e., dimensions) may, however, not be uniformly resolved, since the rotation of the dimensions and their resulting interpretation is a theoretical, conceptual, as well as empirical matter, or as others put it, "it is a matter of how to slice the pie" (Seo et al., 2008: 26). Consequently, one integrated and commonly agreed on two-dimensional structure of affect (Barrett & Russell, 1998; Yik et al., 1999) is very useful for advancing research in a consistent manner but does, however, not dictate which model (i.e., rotational variant) to use. This further means that conclusions derived from one model can always be interpreted in the light of other models (Seo et al., 2008). Putting the focus of analysis on the primary dimensions (i.e., axes) of one model only, nevertheless, limits the interpretation of the results to the theoretical conceptualizations of these dimensions. For example, by relying only on the NA and PA dimensions of Watson and Tellegen (1985), affective stimuli may only be interpreted as combinations of the valence and activation dimensions (e.g., as activated pleasure or unactivated displeasure), but not in terms of their "pure" valence or activation. Seo, Feldman Barrett, and Jin (2008) thus point out that the choice of one specific model should be done and explained thoroughly, also to avoid confusion resulting from different labels of comparable dimensions found in distinct models. Moreover, note that most research investigating affective stimuli in line with a dimensional perspective is based on the dimensions of NA and PA (Watson & Tellegen, 1985), also because Watson, Clark, and Tellegen (1988) developed an easily accessible and easy to use scale, the PANAS scale, which can be used for measurement (Seo et al., 2008). Again, such a specific focus on the poles of two dimensions leaves certain areas of the affective space unexamined, such as the poles of the 45° rotated dimensions (Seo et al., 2008; Yik et al., 1999). Sometimes certain regions of the affective space are omitted based on the argument that certain areas are "less affective" than others, in particular areas of low activation or deactivation (Barrett & Russell, 1998; Yik et al., 1999). Such emotions or emotion-related states, however, also contribute to affective experiences or behaviors and are thus necessary to develop a full understanding of affect, in particular when interested in "short-term affect" (Watson et al., 1999: 829) or affective expressions and behaviors.

In sum, when focusing on certain regions of the affective space only, one should provide proper explanations for doing so. Another approach, which Seo, Feldman Barrett, and Jin (2008) regard as more promising, is to use the circumplex model of affect (Barrett & Russell, 1998; Russell, 1980; Russell & Barrett, 1999) as base-model and enrich the obtained findings by additionally investigating the data in line with the model of Negative Activation (NA) and Positive Activation (PA) (Watson et al., 1988; Watson & Tellegen, 1985; Watson et al., 1999). We agree with this proposition and thus make use of the integrated model of affect proposed by Yik, Russell, and Feldman Barrett (1999), and investigate our data in line with the two primary dimensions as well as the two 45° rotated dimensions. Figure 6 shows the denomination of the dimensional poles, which is used in the present work.

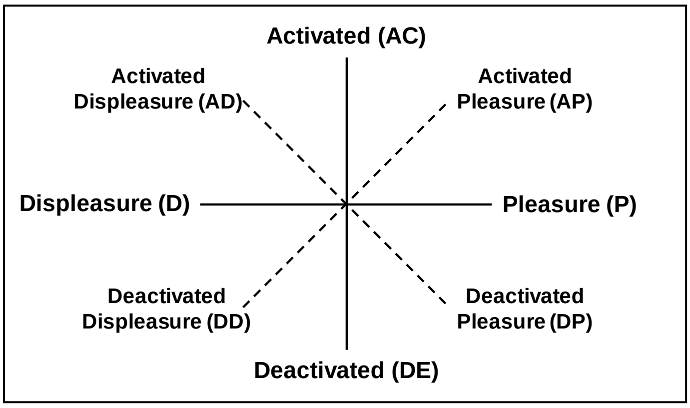

Figure 6. Overview of the dimensional poles of the two-dimensional structure of affect used in the present work. Adapted from Barrett and Russell (1998), Russell (2003), Watson, Wise, Vaidya, and Tellegen (1999), and Yik, Russell, and Feldman Barrett (1999).

D.3.4. Methodological Considerations Regarding the Elicitation and Measurement of Affect

The theoretical and structural issues that need to be addressed for a proper conceptualization of affect, in line with a dimensional perspective of affect (as discussed in the last chapters), also translate to issues of measurement (Seo et al., 2008). In this respect Seo, Feldman Barrett, and Jin (2008) point out that most studies measured affective stimuli by assuming a simple structure (as opposed to a circumplex structure), which stands in conflict with basic assumptions of a dimensional perspective of affect. The prominently used PANAS scale (Watson et al., 1988), for example, assumes such a simple structure, since the measurement of NA and PA is based on “two independent sets of items” (Seo et al., 2008: 34). These sets of items are treated as being independent from each other, which further means that the PANAS scale excludes some affective stimuli. Put differently, it only examines certain regions of the affective space (Larsen & Diener, 1992; Seo et al., 2008), that is, only regions that are explained by affective stimuli of either positively valenced activation or negatively valenced activation. The PANAS scale may thus be used for measuring enthusiasm or distress, but not for measuring happiness or sadness, since the two latter fall close to the dimensional poles of pleasure and displeasure of the valence dimension (which represents the primary dimension of the circumplex model of affect). Moreover, in order to measure affective stimuli in an adequate manner, in line with a dimensional perspective of affect, a bipolar measure should be employed, such that both poles of each dimension are assessed, and not only one half of the affective space (Larsen & Diener, 1992; Seo et al., 2008). One such instrument of measurement is the affect grid (Russell, Weiss, & Mendelsohn, 1989b), which was, however, very rarely used, also because it is a rather unconventional instrument of measurement (Seo et al., 2008).

Whereas the PANAS scale and the affect grid rely solely on the rating of affective stimuli by respondents or subjects, other methods are also based on observational data. One interesting method, which gained more traction in recent years, is sentiment analysis (e.g., Balahur et al., 2012; Mohammad, 2012; Montoyo, Martínez-Barco, & Balahur, 2012; Paltoglou & Thelwall, 2012). It can be used to analyze affective expressions based on text based content in a technology guided and more or less automated way (Balahur et al., 2012). However, it is mostly used to classify messages or expressions as either positively or negatively valenced only (Mohammad, 2012), which further means that it follows a discrete perspective of emotions, but not a dimensional perspective of affect. Moreover, its accuracy largely depends on the quality, structure, and type of the underlying data, as well as the employed algorithms (Balahur et al., 2012; Mohammad, 2012). Machine learning techniques, for example, require an adequate training of the algorithm, which may be resource, time, and data intensive. Another approach would be to rely on affective lexica or databases such as EmotiNet (Balahur et al., 2012), by which affective expressions are identified based on the comparison or matching with entries in the affective database. The shortcoming of this approach is that the identification and analysis of emotions is based on direct and explicit expressions of emotions, that is, clearly identifiable (and for the algorithm comparable) affective words and phrases. As outlined in chapter A.3.7, in text-based interactions emotions are, however, very often not communicated by directly and explicitly “naming” or labeling them (Balahur et al., 2012; Pennebaker, Mehl, & Niederhoffer, 2003). Thus, although the automated classification and analysis of emotions based on semantic analysis showed some progress in recent years, this method still needs further refinement in order to be employed reliably (Balahur et al., 2012; Mohammad, 2012; Reyes & Rosso, 2012).

Moreover, it may be very difficult to measure affective stimuli objectively, since different people may use and interpret similar or the same affective expressions differently (Barrett, 2004; Cheshin et al., 2011). Consequently, Mohammad (2012) cautions that most methods that are currently employed for the detection and analysis of emotions and emotion-related states in and from text-based data do not provide very accurate results, and Balahur, Hermida, and Montoyo (2012) note that the analysis of affective stimuli based on text-based data "can be best tackled using approaches based on commonsense knowledge" (Balahur et al., 2012: 752). Such an approach is Multidimensional Scaling (MDS) (Borg & Groenen, 2005; Kruskal & Wish, 1978; Torgerson, 1952) and will be used in the present work.

D.3.4.a. Multidimensional Scaling (MDS)

Although employed in a number of disciplines, including organizational behavior, economics, or psychology, MDS is hardly used in the field of negotiation research (Pinkley, Gelfand, & Duan, 2005), which is unfortunate since it is a valuable tool for the analysis of behavioral data (Hair, JR., Black, Babin, & Anderson, 2006). In general MDS, which is sometimes also referred to as perceptual mapping, is a mixed methods approach, incorporating qualitative as well as quantitative methods (Auer-Srnka & Griessmair, 2010; Tashakkori & Teddlie, 2003) that can be used to generate distances from similarity judgments (Hair, JR. et al., 2006). These distances are then used to position the similarity-judged stimuli in a multidimensional space or map. As Hair, JR., Black, Babin, and Anderson (2006) further summarize, MDS is based on several techniques that support the researcher by doing so in three steps: (1) Gathering the similarity measures of the assessed stimuli, (2) applying MDS techniques to position the stimuli in a multidimensional space, and (3) interpret and denominate the identified dimensions (i.e., axes) that span and characterize the multidimensional space. Subsequently, these steps will be explained in more detail, also with respect to the present research, but previously the advantages of using MDS over other methods of analysis will be elaborated.

D.3.4.a.1. MDS in Comparison

Similar to factor analysis MDS is based on the correlational structure of the underlying variables (Pinkley et al., 2005). Another shared aspect is the goal to explain these variables by a number of superimposed factors or dimensions in a meaningful manner (Bush, II, 1973; Pinkley et al., 2005). Factor analysis may, however, yield higher-dimensional solutions (Brazill & Grofman, 2002). In comparison to factor analysis as well as cluster analysis, MDS solutions "can be obtained for each individual and [MDS] does not use a variate" (Hair, JR. et al., 2006: 544). MDS is more flexible, than the two other mentioned methods of analysis, because it does not require the researcher to define the variables, attributes, or stimuli that are compared and analyzed (Hair, JR. et al., 2006). Put differently, MDS is an attribute-free approach, meaning that the researcher does not need to specify any criteria or dimensional definitions in compliance with which the items of analysis should be judged according to their similarity (Bush, II, 1973; Hair, JR. et al., 2006; Pinkley et al., 2005). Factor or cluster analysis would be attribute-based approaches, which require that items are assessed based on previously defined attributes (Auer-Srnka & Griessmair, 2010; Pinkley et al., 2005). Note that, since MDS is an attribute-free approach, it can also be used as an attribute-based approach, if desired. Consequently, MDS can be regarded to be more open, flexible, as well as inductive (Bush, II, 1973; Lawless, Vanne, & Tuorila, 1997; Robinson & Bennett, 1995), and thus to leverage advantages of data-driven and exploratory research designs (Auer-Srnka & Griessmair, 2010). In this respect MDS also differs from content analysis, since it allows reducing the involvement of the researcher who does not have to be involved in the process of categorizing or defining the items of analysis (Auer-Srnka & Griessmair, 2010). Also, when employing content analysis, items are assigned to distinct and mutually exclusive categories (Liu, 2009), which may result in an artificial creation of boundaries, and thus a loss of information (Auer-Srnka & Griessmair, 2010). This can be problematic in the present case where affective stimuli are analyzed and interpreted in line with the dimensional perspective of affect. Note that content analysis may, however, be more suitable when affective stimuli are interpreted in line with a discrete perspective of emotions (as outlined in chapter A.2). Low measures of inter-coder reliability may pose further problems when content analysis is employed. Another advantage of dimensional representations provided by MDS is that although the dimensions are independent, the underlying items can be explained as combinations of the dimensions (Auer-Srnka & Griessmair, 2010). Moreover, since MDS relies on distance measures based on similarity judgments, the data requirements, or statistical assumptions, are less constrained than for example those for factor analysis (Borg & Groenen, 2005; Lawless et al., 1997; Russell, 1980). Further, MDS can rely on metric as well non-metric input data (Borg & Groenen, 2005; Pinkley et al., 2005). Also, and importantly, the output data generated by MDS is of metric nature (Auer-Srnka & Griessmair, 2010; Borg & Groenen, 2005; Shepard, 1987), which also sets it apart from content analysis, for example. Finally, MDS was already successfully employed for the analysis of emotions (Abelson & Sermat, 1962; Barrett, 2004; Bigand et al., 2005; Bimler & Kirkland, 2001; Bush, II, 1973; Daly et al., 1983; Feldman, 1995a; Hamann & Adolphs, 1999; Kring, Feldman Barrett, & Gard, 2003; Lawless et al., 1997; Russell, 1980, 1983; Russell & Bullock, 1985), and was recently shown to be a valuable tool for the analysis of emotions based on text-based negotiations (Griessmair & Koeszegi, 2009).

D.3.4.a.2. MDS Step 1: Gathering the Similarity Measures of the Assessed Stimuli

One advantage of using MDS for the analysis of text-based data, and one of the reasons why it is used in the present case, is that it can be described as an approach that relies on human commonsense or on fundamental aspects of human perception (Shepard, 1987; Tversky, 1977). In particular, the judgment of items or stimuli according to their similarity resembles the process of how humans perceive and judge their environment as well as upon which human decision making and behavior is based (Green & Carmone, 1970; Pinkley et al., 2005; Shepard, 1987; Tversky, 1977). In line with this reasoning, the first step of MDS is to generate the input data for the scaling algorithm (used in step 2), via similarity judgments.

These are obtained by having raters judge the similarity (or alternatively the dissimilarity) of all items or stimuli under analysis (Borg & Groenen, 2005). In this respect one critical assumption is that these items can be clearly distinguished from each other (Auer-Srnka & Griessmair, 2010), such as in the present case, where each item represents a negotiation message with a clear beginning and end. As mentioned, the judgment task is performed by raters. These raters are typically uninvolved in the research project, such that the judgment of the items proceeds unbiased and intuitively (Bijmolt & Wedel, 1995; Robinson & Bennett, 1995). This aspect of data collection and preparation is important, since subjects may impact the quality of the data and thereby skew the obtained results of the analysis (Bijmolt & Wedel, 1995).

With respect to affect, another important aspect of data collection and preparation is that most research conducted in line with the dimensional perspective of affect, is based on (similarity judgments of) self-reports (Larsen & Diener, 1992; Russell, 1983). The present research, however, relies on (similarity judgments of) observed data, which may raise the question whether uninvolved observers (i.e., raters) can reliably judge affective expressions and behaviors of other people (Gosling, John, Craik, & Robins, 1998; Larsen & Diener, 1992). Here Gosling, John, Craik, and Robins (1998) note that people perceive and judge others' behaviors similar to their own (Bem, 1967, 1972), but also that uninvolved observes may judge others' behaviors more objectively and accurately than the observed people themselves (Taylor & Brown, 1994). Also, since the similarity ratings of items or stimuli can follow an attribute-free approach, that is, they are not based on previously specified categories or attributes, semantic problems can be avoided (Lim & Lawless, 2005). Furthermore, attribute-free judgments may be preferred over judgments based on categorization, because individuals (i.e., the raters) have harder times to think in terms of pre-defined categories than in terms of similarities (Pinkley et al., 2005). Thus, it is advised to base the judgment of observed behavioral data on as little constraints as possible (Borg & Groenen, 2005; Lim & Lawless, 2005).

Regarding the judgment task, different forms or methods of sorting are possible, such as free sorting or different versions of forced choice sorting (Borg & Groenen, 2005; Cowie & Cornelius, 2003; Lim & Lawless, 2005). As the name suggests, forced choice sorting imposes certain constraints on the judgment task, such as pre-defined numbers or definitions of sorting categories. Free sorting, being restricted by the least constraints, asks the raters to freely judge and sort all provided items or stimuli by their respective similarities. For this purpose the raters are asked to sort all items into an unrestricted number of decks of items, containing items which they judge as being similar to each other. This judgment task was shown to be not overly demanding for the raters, to be more enjoyable, as well as to deliver better data quality, than classification tasks based on forced choices (Bijmolt & Wedel, 1995; Borg & Groenen, 2005; Lim & Lawless, 2005). The similarity ratings obtained from the judgment task are then used to create a similarity (or dissimilarity) matrix, which serves as input for the MDS algorithm employed in the next step (Borg & Groenen, 2005). Tsogo, Masson, and Bardot (2000), for example, provide more detailed descriptions and comparisons of different data preparation tasks, and the works by Lawless, Sheng, and Knoops (1995) or Fry and Claxton (1971) are examples for the application of a free sorting task.

D.3.4.a.2.1. MDS Step 1 in the Present Case

Our items of analysis are single and complete negotiation messages. These were retrieved from the database storing all information from and supporting the conducted negotiations via Negoisst. Transcripts of 57 negotiations were retrieved consisting of a total of 730 negotiation messages, or 12.81 messages per negotiation on average. For the further analysis, all 57 negotiations were divided into 3 equally sized groups of 19 negotiations each. The respective descriptive statistics are shown in Table 2. The reason for doing so is twofold. First, the effort of the similarity judgment task should be kept at a bearable level for the raters. Since judging all 730 negotiation messages according their similarity would be too demanding, the number of messages is reduced to a level which leaves enough messages to conduct this task meaningfully (i.e., leaving enough messages to make meaningful comparisons), while not leaving too many messages such that the raters are overwhelmed. Second, by forming subgroups of analysis we can assure the quality of our results, with respect to the number as well as the interpretation and denomination of the obtained dimensions. Consequently, we would expect to obtain the same affective dimensions (i.e., the same number as well as the same qualitative interpretation) for each of the subgroups, independently. It might already be interesting to note at this point that this was the case, as will be shown later on.

Table 2
Descriptive Statistics for Groups of Raters

	Negotiations	Messages total	Messages mean	Agreement	No agreement
Group 1 (26 raters)	19	250	13.16	13	6
Group 2 (22 raters)	19	245	12.89	13	6
Group 3 (21 raters)	19	235	12.37	12	7
TOTAL (69 raters)	57	730	12.81	38	19

Table 2 shows that each subgroup contains almost the same number of messages as well as that failed and successful negotiations are represented equally in each subgroup. In total, 69 raters, ranging from 21 to 26 raters depending on the subgroup, provided similarity judgments. Note that the unequal number of raters resulted from employing students from advanced level courses as raters. Initially, all messages of every subgroup were handed out to 33 potential raters, from which the indicated number of raters completed the rating (i.e., similarity judgment) task.

To prepare the data items (i.e., the negotiation messages) for the rating task, every single negotiation message was printed on a single sheet of paper. These were then randomized and handed out to the raters together with further instructions on how to proceed (describing a free sorting judgment task). Again note that all the raters, of each subgroup, received all messages of all negotiations assigned to the respective subgroup, meaning that all the raters (of one subgroup) received the same messages. The instructions explained that all the messages (printed on single sheets of papers) had to be sorted according to emotional similarity. For this purpose the raters were asked to form decks of items (i.e., the negotiation messages printed on single sheets of papers), containing messages that can be described by similar emotions. The instructions specified that each deck should be internally consistent and homogeneous, while the decks themselves should be heterogeneous and differ as much as possible, emotion-wise. The number of decks was not limited. In practice this proceeded as follows: First a rater would randomly draw one sheet of paper with one message printed on it. Then he or she would draw another message and judge whether these two are similar emotion-wise, or not. If they were judged to be emotionally similar, then they would be put on top of each other, hence forming a deck. If they were judged to be emotionally dissimilar, then they would both form their own deck. This procedure was repeated as long until all messages were assigned to decks. It was also permitted to re-sort decks upon consideration. Additionally, the raters were asked to describe the decks and explain which emotion was reflected in messages pertaining to a deck. Also, raters had to judge the emotional decks by affective intensity. They had to indicate on a scale from 1 to 7 how emotionally intense the messages, pertaining to a deck, are with 1 indicating very positive emotions, 4 indicating neutral emotions, and 7 indicating very negative emotions. Finally, raters were also asked to highlight which words or phrases were decisive for their judgments. All this supplementary information was later additionally used for the identification, denomination, and description of the affective dimensions.

The obtained similarity judgments were then used to create one similarity matrix per rater, following Borg and Groenen (2005). A similarity matrix is based on the cross-tabulation of all messages with all messages (very much like a correlation table), put simply. Hence, a similarity matrix can basically be thought of as a matrix of indices of similarities in a tabulated form, with values taking on either 0 or 1. A value of 1 indicates that this rater judged two messages as similar (i.e., sorted them into the same deck), while a value of 0 indicates that this rater judged two messages as dissimilar (i.e., sorted them into different decks). Once similarity matrices were produced for each rater, these were averaged over all raters within one subgroup, resulting in three similarity matrices (for each respective subgroup), for further analysis with a MDS algorithm. The resulting averaged matrices thus contain values that range from 0 to 1.

D.3.4.a.3. MDS Step 2: Applying MDS Techniques to Position the Stimuli in a Multidimensional Space

As indicated, the required input for the MDS techniques (i.e., the MDS algorithm) is a similarity or dissimilarity matrix. Note that a dissimilarity matrix is but an inverted similarity matrix, with 1 indicating dissimilarities and 0 indicating similarities. Some software programs or algorithms require similarity matrices, whereas others require dissimilarity matrices. The necessary transformation from one type of matrix to the other thus is a software issue and straightforward. Once the required matrix is constructed it provides the proximity data for further analysis. This is based on deriving estimates of the proximities (i.e., similarity judgments) between the items (Abelson & Sermat, 1962). The purpose is to analyze and uncover the relational structure of the (similarity judged) items in an “appropriately multidimensional” space (Abelson & Sermat, 1962; Auer-Srnka & Griessmair, 2010; Pinkley et al., 2005). Put differently, a spatial representation of the structural similarities of the proximity data is produced and reflected in an n-dimensional geometric space or map (Daly et al., 1983; Lawless et al., 1997; Lim & Lawless, 2005; Pinkley et al., 2005).

D.3.4.a.3.1. MDS Step 2 in the Present Case

In the present case, the obtained proximity data were analyzed using PERMAP 11.8a (Perceptual Mapping Using Interactive Multidimensional Scaling) (Heady & Lucas, 2010) and the SMACOF (Scaling by MAjorizing a COmplicated Function) (De Leeuw & Mair, 2008) package for the R software environment (R Core Team, 2013) to validate the results obtained via PERMAP, in particular with respect to the dimensionality of the solution. In more detail, nonmetric (ordinal) MDS (Kruskal, 1964a, 1964b; Shepard, 1962a, 1962b) was used, with Euclidean distances as distance measures. Nonmetric MDS is argued to be more suitable for the analysis of data in social or psychological disciplines (Agarwal, Wills, Cayton, Lanckriet, Kriegman, & Belongie, 2007; Ashby, Maddox, & Lee, 1994; Bartholomew, Steele, Galbraith, & Moustaki, 2008; Dougherty & Thomas, 2012; Takane, Jung, & Oshima-Takane, 2009), and thus also is a very common approach for the analysis of affect (Reisenzein & Schimmack, 1999; Russell, 1980, 1983; Shaver et al., 1987; Storm & Storm, 1987; Van Katwyk, Fox, Spector, & Kelloway, 2000). In addition, researchers caution of relying on too strong and linear assumptions when analyzing data that is based on subjective (similarity) judgments, and suggest to rather use more flexible and less stringent assumptions (Agarwal et al., 2007; Ashby et al., 1994; Bartholomew et al., 2008; Burton & Romney, 1975; Dougherty & Thomas, 2012; Kenkel & Orlóci, 1986; O'Hare, 1980; Rabinowitz, 1975; Takane et al., 2009; Tsogo et al., 2000). Further, although nonmetric MDS “only” uses the ordinal (i.e., rank order) information of the data, it was shown to match metric MDS solutions very closely (Shepard, 1962a). Based on Monte Carlo simulations, Rao and Katz (1971) also showed that nonmetric MDS based on a free sorting task, as it is used in the present work, recovered the original configuration better than metric MDS. The used badness-measure in the present analyses was raw Stress (i.e., Stress-1 squared) since SMACOF only reports these values by default. Furthermore, convergence as well as precision criteria were adjusted, to ensure solution stability for large datasets of more than 200 items (Heady & Lucas, 2010). The resulting n-dimensional solution(s) as well as issues regarding identification, interpretation, and denomination of these, will be discussed subsequently.

D.3.4.a.4. MDS Step 3: Interpret and Denominate the Identified Dimensions (i.e., Axes) that Span and Characterize the Multidimensional Space

Before going more into detail with respect to the interpretation and denomination of the affective dimensions, we need to turn our attention to the dimensionality of the MDS solution obtained in the present case. In general, it is proposed to calculate results of different dimensionalities and compare the obtained solutions (Borg & Groenen, 2005; Kruskal, 1964a). The comparisons of these different dimensional solutions and the determination of the appropriate number of dimensions is then based on certain quality or performance criteria. One of these criteria is the examination of Stress or Stress-1 values. Note that Stress-1 is calculated by taking the square root of a Stress value, which is sometimes also referred to as raw Stress. For a further discussion regarding the differences of these measures, the interested reader is referred to Borg and Groenen (2005). Also note that using Stress or Stress-1 will produce the exact same spatial representation, that is, configuration of the geometric map (Heady & Lucas, 2010). More specifically, Stress (such as Stress-1) is a loss function that assesses the badness-of-fit, similar to the goodness-of-fit measured by correlation coefficients (Borg & Groenen, 2005). Sometimes it is suggested to compare the obtained Stress values with the coefficient of alienation, proposed by Guttman (1968), which states that the acceptable dimensionality of a non-metric MDS solution should yield a Stress value of less than 0.15 (Borg & Groenen, 2005). Similarly, Kruskal (1964a) proposes that the goodness-of-fit of a non-metric MDS solution can be incrementally categorized by Stress-1 values such that 0.20 indicates a poor, 0.10 a fair, 0.05 a good, 0.025 an excellent, and 0.00 a perfect goodness-of-fit (Borg & Groenen, 2005). Borg and Groenen (2005), however, further point out that such benchmarks may be misleading and sometimes uninformative, since large values may not always imply bad fit, because Stress (and thus also Stress-1) values are influenced by several factors such as the number of items to be multidimensionally scaled. In this respect Stress values tend to increase with the number of items or stimuli, which means that values that are obtained in classical applications with, for example, 7 to 18 items (Bijmolt & Wedel, 1999; Henry & Stumpf, 1975; McIntyre & Ryans, 1977) may not be obtained in the present case where we are dealing with more than 200 items at a time. Conversely, Stress values tend to decrease with every additional dimension. Consequently, it is suggested to also inspect different dimensional solutions with respect to a significant decrease in Stress, with the aim being to identify and chose the dimensional solution right before the decrease in Stress (for the following dimensional solutions) becomes less pronounced (Borg & Groenen, 2005; Kruskal, 1964a). Graphically, this can be done by inspecting a scree-plot for the statistical elbow (Borg & Groenen, 2005; Cox & Cox, 2001). The statistical elbow (i.e., the point where the decrease in Stress becomes less pronounced) indicates “where MDS uses additional dimensions to essentially only scale the noise in the data, after having succeeded in representing the systematic structure in the given dimensionality” (Borg & Groenen, 2005: 48). Finally, in reference to Kruskal (1964a), Borg and Groenen (2005) note that a dimensional evaluation and decision based on Stress (or Stress-1) only follows mechanical criteria and needs to be complemented by the criterion of interpretability. This means that a dimensional solution should also be chosen such that it can be meaningfully interpreted. Hence, any additional dimension that provides no further meaningful insight into the structure of the underlying items or stimuli should be discarded. In this respect it is also noted by Borg and Groenen (2005) that often two-dimensional solutions may be preferred, since they are simple to interpret but, nevertheless, nontrivial. Also, the authors highlight that the interpretability should be closely tied to a solid basis of theoretical as well as empirical findings. In sum, the “proper” number of dimensions should not be too low such that the underlying structure is distorted, but should also not be too high such that the structure is blurred by noise in the data (Borg & Groenen, 2005).

D.3.4.a.4.1. MDS Step 3 in the Present Case: Determining the Appropriate Number of Dimensions

To determine the appropriate number of dimensions in the present case, we calculated one, two, three, four, and five-dimensional MDS solutions. The corresponding Stress values, for all three groups, are found in Table 3. The scree plots are shown in Figure 7.

Table 3
Stress Values of n-Dimensional MDS Solutions

	Stress values		
Number of dimensions	Group 1	Group 2	Group 3
1	0.10138	0.10573	0.11813
2	0.05338	0.05210	0.05429
3	0.03353	0.03082	0.03226
4	0.02272	0.02085	0.02165
5	0.01648	0.01470	0.01560

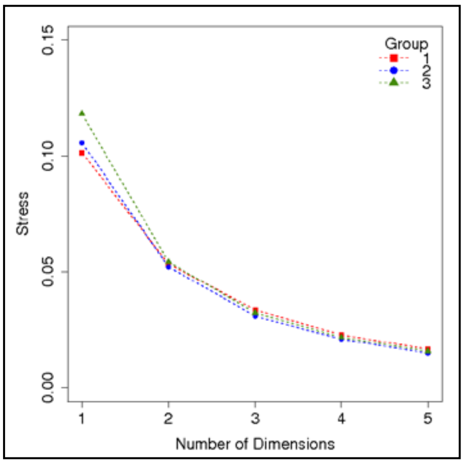

Figure 7. Scree plots of up to five-dimensional MDS solutions.

Overall, we observe the largest, and a significant, decrease of stress from the one- to two-dimensional solutions. An inspection of the scree plots also shows that the "statistical elbow" indicates to opt for a two-dimensional solution. In order to rule out a potential three-dimensional solution, we further inspected whether a third dimension could be interpreted meaningfully, by inspecting messages loading high on such an additional dimension. It was, however, not possible to describe a third dimension in a meaningful manner, in any of the three groups. Consequently, we determine the appropriate solution to be two-dimensional.

Once an appropriate MDS solution is obtained, each item in the resulting space can be characterized as being more or less closely related to each of the identified dimensions (Pinkley et al., 2005; Rust & Cooil, 1994; Varki, Cooil, & Rust, 2000), which further means that each single item (i.e., each negotiation message in the present case) is described by multiple dimensions (two in the present case) to different extents. Moreover, the spatial representation of the proximity data illuminates or uncovers the "hidden structure" (Pinkley et al., 2005: 79) of whatever is implicitly encoded in the data (Gelfand, Nishii, Holcombe, Dyer, Ohbuchi, & Fukuno, 2001; Shepard, 1987). This is argued to be one important strength of MDS with respect to the analysis of affective stimuli (Barrett, 2004; Griessmair & Koeszegi, 2009), since it renders the salient attributes of the underlying cognitive and psychological (i.e., mental) structure visible (Barrett, 2004; Seo et al., 2008). Put differently, MDS yields "inductive, but empirically derived" (Robinson & Bennett, 1995: 558) results. Since a circumplex structure is similarly defined, it usually results from the analysis of proximity data via MDS (Barrett & Fossum, 2001). When the stimuli to be analyzed are of affective nature, MDS thus traditionally delivers a circumplex structure of affect, described by the two bipolar dimensions of valence and activation (Barrett, 2004; Russell & Barrett, 1999; Seo et al., 2008), as also already summarized toward the beginning of this chapter. Moreover, a dimensional or circumplex structure of affect does not only reflect the relational structure of affective words in general, but also of experienced affect (Larsen et al., 2001) or, as in the present case, of expressed affect (or more precisely of emotional episodes, as outlined in chapter A.2.2.b), in line with core affect (Russell, 2003, 2009; Russell & Barrett, 1999). Consequently, the interpretation of our obtained two-dimensional structure can be based on a strong theoretical as well as empirical foundation.

To finally interpret the two-dimensional MDS solution, the next step requires determining the position of the axes (i.e., dimensions) in the geometric space. As outlined in chapter D.3.3, the interpretation of the affective space follows the logic of an integrated dimensional model of affect in line with a circumplex configuration, and is thus generally based on the dimensions of valence and activation (Yik et al., 1999). Consequently, we seek to identify the position of the primary dimensions (i.e., axes) of "pleasure-displeasure" and "activation-deactivation", as well as of the 45° rotated secondary dimensions (i.e., axes) of "activated pleasure-deactivated displeasure" and "activated displeasure-deactivated pleasure", in the obtained two-dimensional space. To see whether these dimensions can be recovered, and if so where the respective dimensions are located, we need to inspect the MDS results visually (Pinkley et al., 2005). By visual inspection it is meant to describe or characterize individual negotiation messages in order to explain and define certain areas or regions of and in the affective space. Doing so then enables us to locate the appropriate position of each affective dimension (i.e., axis). This visual inspection can be easily done using PERMAP, which displays all items (labeled) in the obtained two-dimensional space and further allows us to rotate the axes in this space. To describe or characterize the negotiation messages, we are examining the (affective) content of these, as well the additional information we received from the raters together with each respective message, that is, the emotional description and the rating of the emotional intensity. Note that the interpretation of the dimensions is done independently for each of the three subgroups, which were formed for the data analysis. In addition to the reason stated above (i.e., to assure data consistency and quality) this is a necessary step since the items may fall around the initially derived affective space in a different manner in each of the subgroups. Hence, it also needs to be assured that the dimensions of the three independent subgroups are similarly aligned, before the MDS solutions can be integrated for further analysis.

First, based on the visual inspection of the MDS solutions, we were able to identify two primary and two 45° rotated secondary dimensions in line with the dimensional model of affect outlined by Yik, Russell, and Feldman Barrett (1999), for all three subgroups independently. Hence all negotiation messages can be explained by the same affective structure. Subsequently, the rotations of the axes (i.e., dimensions) of the three MDS configurations were aligned such that they reflect the integrated circumplex configuration proposed by Yik, Russell, and Feldman Barrett (1999) in its slightly adapted form as depicted in Figure 6. Then, the resulting solutions were merged from three to one single dataset. Figure 8 depicts the mapping of all negotiation messages onto the circumplex space of affect, as well as the locations of the above described affective dimensions in this space. The next section elaborates on the interpretation of the obtained affective dimensions, as well as on how messages reflected by these dimensions are interpreted.

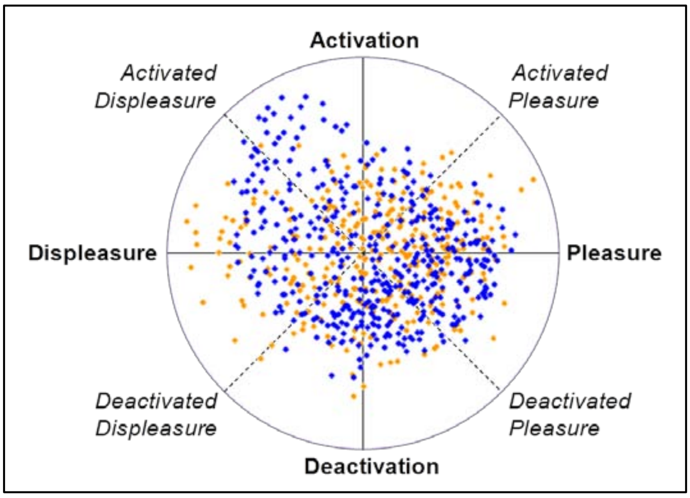

Figure 8. Mapping of all negotiation messages onto the affective space.

D.3.4.a.4.2. Step 3 in the Present Case: Interpretation of the Affective Space

Since we base the interpretation and analysis of affective behaviors on an integrated dimensional model of affect (Yik et al., 1999), we are interested in the primary as well as the 45° rotated secondary affective dimensions. Put differently, we seek to interpret each octant of the affective space. For ease of understanding, the subsequent interpretation and explanation will first focus on the two primary dimensions of "pleasure-displeasure" (referred to as valence dimension V) and "activation-deactivation" (referred to as activation dimension A), which basically reflect the structural configuration of the circumplex model of affect (Barrett & Russell, 1998; Russell, 1980; Russell & Barrett, 1999). This will be followed by the interpretation and explanation of the 45° rotated dimensions of "activated pleasure-deactivated displeasure" (referred to as AP/DD dimension, in reference to the denomination proposed by Watson, Wise, Vaidya, and Tellegen (1999)) and "activated displeasure-deactivated pleasure" (referred to as AD/DP dimension, in reference to the denomination proposed by Watson, Wise, Vaidya, and Tellegen (1999)), which basically reflect the structural configuration of the two-factor model of Negative Activation (NA) and Positive Activation (PA) (Watson et al., 1988; Watson & Tellegen, 1985; Watson et al., 1999). A summary of the dimensional configuration of the affective space was already shown in Figure 6, as well as Figure 8. In order to interpret the bipolar affective dimensions we examine negotiation messages that load high and fall close to a specific dimensional pole. Subsequently, mostly only parts of entire negotiation messages will be presented. The full messages are found in Appendix A. Also note that negotiation messages (or parts thereof) are shown unedited, which means that they also show typing errors that were made by the negotiators.

The Pleasure Pole (P)

We start by examining the positive pole of the valence dimension, pleasure (P). Exemplary negotiation messages falling close to and loading high on this dimensional pole are:

Message a21: "Dear Mr Koller,I am glad to hear from you and I think it will be a real adventure, in positive way, to work with you and your company. My collegues and I already discussed our position, so we will be really happy if we hear from you soon.On good negotiation!Regards,Mr. Husar" (loading on dimension V = 0.6662; loading on dimension A = 0.0912)

Note that these loadings, for example, indicate that message a21 is located in the central right half of the affective space. This means that it falls close to the pleasure pole of the valence dimension (i.e., axis), since it loads high (0.6662) on the positive pole of the valence dimension, but loads neither high nor low (0.0912) on the activation dimension. Put differently, in reference to the valence dimension it is situated toward the outer side of the positive pole, and in reference to the activation dimension it is situated close to the center.

The raters described the deck containing this message, for example, as: Friendly, happy, pleasant, emotionally positive, optimistic, nice, cooperative, hopeful, sociable, or motivating.

Message c20: "Hi Mrs. Koller,Seems like we can finish this today - 1 day ahead of scedule![…] was a mistake on my side.:-) […] It has been nice negotiatiating with you. Lets accept this and get it over with.BTW: I am doing this for a course at the Vienna university - how about you?Best regardsHusar" (loading on dimension V = 0.6107; loading on dimension A = 0.0363)

The raters described the deck containing this message, for example, as: Positive, friendly, hopeful, polite, nice, pleased, optimistic, happy, helpful, solution oriented, sympathetic, or intimate.

Additional negotiation messages are found in Appendix A.1. In general, all of these negotiation messages, as well as other messages falling close to these (and thus to the dimensional pole P), can be explained in line with traditional interpretations of the pleasure pole of the valence dimension. This is further supported by the interpretation obtained by the raters. Hence, affective expressions reflected in these messages as well as other messages falling around (i.e., loading high on) the pleasure pole P can generally be described by, for example, glad, happy, pleased, or friendly.

Some exemplary phrases that highlight this interpretation would be:

- "I am glad to hear from you"
- "I think it will be a real adventure, in positive way, to work with you"
- "It has been nice negotiatiating with you"
- "I'm glad to tell you that Metallurg accepts this offer"
- "I'am very pleased with your last offer and I really think that we are very close on reaching an agreement"

The Displeasure Pole (D)

Next, we examine the negative pole of the valence dimension, displeasure (D). Exemplary negotiation messages falling close to and loading high on this dimensional pole are:

Message c59: "Husar,I am very disappointed with your last offer. It feels like a message of distrust. Thanking into consideration […] I find a 50-50 split unacceptable. […] Therefore, I will never go lower than […]. I find you argument a bit weak. […] If we can not agree on this point, I must lower the duration of the contract to 5 year, with an option to renegotiate at that point. Also, if the additional compensation of the Ukrainian workers is too low, we are not willing to pay a percentage of the wages.I hope we can agree on these issues." (loading on dimension V = -0.8375; loading on dimension A = 0.0994)

The raters described the deck containing this message, for example, as: Irritated, impolite, bold, frustrated, serious, disappointed, sad, negative, unfriendly, sensitive, or cold.

Message c202: "Dear K. Koller,I didn't understand your point of view. Your previous offer was the same as the last. I have already told you that we couldn't accept it. As I understood you don't want to offer us any compromise solution and you want to have all the benefits. It doesn't work. We are partners and we should find a solution that will be acceptable for both of us. […] And as a joint venture will be set up in the Ukraine it seens obvious that there shoul be more Ukranian directors on board. Why do you insist on having 4 members? We aren't only interested in making friends; we are also looking to make a profit. I don't think that only your company should have a profit. I'd like to hear your point of view on my argumentation,Kind regards,H." (loading on dimension V = -0.8322; loading on dimension A = 0.0452)

The raters described the deck containing this message, for example, as: Irritated, disrespectful, frustrated, negative, slightly aggressive, sarcastic, ironic, unfriendly, somewhat offending, impolite, direct, disappointed, not so nice, or somewhat cold.

Additional negotiation messages are found in Appendix A.2. In general, all of these negotiation messages, as well as other messages falling close to these (and thus to the dimensional pole D), can be explained in line with traditional interpretations of the displeasure pole of the valence dimension. This is further supported by the interpretation obtained by the raters. Hence, affective expressions reflected in these messages as well as other messages falling around (i.e., loading high on) the displeasure pole D can generally be described by, for example, unhappy, unfair, displeased, or irritated.

Some exemplary phrases that highlight this interpretation would be:

- "I am very disappointed with your last offer"
- "I have already told you that we couldn't accept it"
- "As I understood you don't want to offer us any compromise solution and you want to have all the benefits"
- "As time is running, and of course I've shared my thoughts many times before I won't make any other suggestion"

The Activation Pole (AC)

Next, we examine the positive pole of the degree of activation dimension, activation (AC). Exemplary negotiation messages falling close to and loading high on this dimensional pole are:

Message a221: “Dear Mr. Husar,I am glad we agree about the playment of the workers. But, your proposal of a ten-year contract is ridiculous. In ten years a lot can happen and the times are currently very uncertain. I expect a serious offer. Furthermore, we can not accept your offer of just one director of Mihalits in board. We want a minimum of three directors on board.If you want to collaborate, I hope you take this negotiatoin seriously.Best regards” (loading on dimension A = 0.6994; loading on dimension V = -0.2417)

The raters described the deck containing this message, for example, as: Afraid that the negotiation will have a premature ending, very pessimistic, strong pressure, offended, completely dissatisfied, offers and discussions, dominant, anger, negotiations stall, dissatisfied, threatening, dismissive, subliminal dissatisfaction, disappointment, neutral and informative, incomprehension, neutrally negative, insisting, aroused, reluctant, ignoring, irritated, or condescending.

Message b67: “Dear Mr. Husar,You have a lot of frustrations, which are in my opinion misplaced. Besides, these frustrations will do no good for the negotiation, so you should keep that in mind. You keep blaming me for my 'late' response, while it is obvious that your first response was not very fast either. Furthermore, I have been very open to you, so your accusation of me insulting you, is a misunderstanding from your side. I gave a very honest and fair response about a great part of the agenda items, and it is very pitiful that you don't take my offer serious. Besides this, you have also threatened to stop the negotiation twice, but what will you reach with that? This negotiation is indeed important for Mihalits AG, but it is at least as important for Metallurg Technologies and we both know that stopping the negotiation at this point is not what Metallurg Technologies wants. So, before you send your next message, I hope you will think twice before you start to accuse me falsely or threaten to stop the negotiation.Since it is the best for both companies to proceed this negotiation, I will give you my constraints by filling in the agenda items: […]. When I compare my items with yours, I notice we have an agreement about the additional compensation of Ukrainian workers (30%).I hope you will give a reasonable offer now this is cleared.Yours sincerely,K. Koller” (loading on dimension A = 0.6835; loading on dimension V = -0.3449)

The raters described the deck containing this message, for example, as: Nerved, suggestions are ignored, disappointed, serious, annoyed, commanding, direct, consequent, threatening, distrusting, insecure, contemptuous, attacking, reproachful, impolite, harsh, frustrated, feeling misunderstood, or aroused.

Message a5: “Mr. Husar,I am appalled by the time you took to respond on my offer, apparently our joint venture isn't of much interest to you. However I am still willing to continue the negotiation, despite the lack of time we have left. As it seems our negotiation isn't making much progress, I believe openness of information might give us the opportunity to salvage this deal to both parties satisfaction. The following offer include my hard constraints, as given to me by the board of directors: Additional compensation Ukrainian workers: With 10%, we are making a big concession.Court of jurisdiction: Ukraine is not an option; foreign companies just aren't treated right. Germany is in a neutral terrain and doesn't give either of us an advantage.Duration of contract: We already agreed for five years, but I am willing to go to 8, because I can see your point of view.Mihalits directors in board: We already agreed with Metallurg Technologies in the preliminarydiscussion on a five member board, we are willing to settle for three members. Payment of workers hired for the JV: A split is fairMihalits share of future revenue: Again, a split is fair; we both have our share to make.Secrecy clause: The point is we have the (as good as finished) knowledge, but not the production capacity. This point is critical to our company, it gives us a competing edge, and without it, we have no unique selling point. So, to sum it up, secrecy clause: yes.This is a reasonable offer, and it is the best I can do.You can either accept or reject this offer, it is not negotiable. Like I said, we don't have much time left, so we need to come to an agreement. Don't forget, collaborating with us will give Mettalurg Technologies decision makers reasons to invest in new roads electric power stations, airports etc. These projects should upgrade the region in the eyes of potential foreign investors and enhance the possibility of generating new joint business ventures with western enterprises. You can lead the way for an entire region.With kind regards,Mr. Koller" (loading on dimension A = 0.6213; loading on dimension V = -0.2383)

The raters described the deck containing this message, for example, as: Wondering about the other's negotiation style, disappointed about the process and progress, dissatisfied, unfriendly, nerved, negotiations stall, bargaining, warnings, neutrally unfriendly and negative, confident, arrogant, forceful argumentation, taking initiative, emotionally deprecative, irritated, or neutrally negative facts and arguments.

Additional negotiation messages are found in Appendix A.3. In general, all of these negotiation messages, as well as other messages falling close to these (and thus to the dimensional pole AC), can be explained in line with traditional interpretations of the activation pole of the degree of activation dimension. This is further supported by the interpretation obtained by the raters. Hence, affective expressions reflected in these messages as well as other messages falling around (i.e., loading high on) the activation pole AC can generally be described by, for example, surprised, astonished, aroused, or active.

Some exemplary phrases that highlight this interpretation would be:

- "But, your proposal of a ten-year contract is ridiculous"

- “You have a lot of frustrations, which are in my opinion misplaced. […] You keep blaming me for my 'late' response, while it is obvious that your first response was not very fast either.”
- “apparently our joint venture isn't of much interest to you”
- “I urge you to not comment in that manner again!”
- “We honestly feel that your comment about us showing little cooperative will is an insult!”
- “we were surprised by your negative and almost hostile reaction”

Also note that the description of active is visible in the length of the messages as well as the depth of discussion, especially in the messages a30 and a139 (found in Appendix A.3.). Moreover, some messages that load very high on the dimensional pole AC (i.e., are strongly characterized by this dimensional pole), are also found to be somewhat characterized by the negative pole of valence, that is, displeasure (as indicated by their loadings on this dimension). This shows that affective expressions of very high activation are also paired with negatively valenced emotions, at least to some extent.

The Deactivation Pole (DE)

Next, we examine the negative pole of the degree of activation dimension, deactivation (DE). Exemplary negotiation messages falling close to and loading high on this dimensional pole are:

Message c215: “Hi,I have made an issue, and it is Accept (as we dont have any issues, dint know what else to write) and I filled in all the questionares.best,” (loading on dimension A = -0.6101; loading on dimension V = -0.0504)

The raters described the deck containing this message, for example, as: Neutral, factual, direct, informal, indifferent, tranquil, cold, distant, impersonal, emotionless, neither positive nor negative emotions, rational, short and factual, unaffected, or superficial.

Message b32: “Dear Mr./Mrs. Husar,I would like to start our business relationship by discussing the duration of contract.My firt offer is a joint venture of 3yers. Best regards,Mr. Koller” (loading on dimension A = -0.5698; loading on dimension V = -0.0942)

The raters described the deck containing this message, for example, as: Neutral, no feelings, formal, objective, indifferent, businesslike, emotionally neutral, minimum effort, factual, emotionless, not emotional at all, only informational, straightforward, or clear.

Additional negotiation messages are found in Appendix A.4. In general, all of these negotiation messages, as well as other messages falling close to these (and thus to the dimensional pole DE), can be explained in line with traditional interpretations of the deactivation pole of the degree of activation dimension. This is further supported by the interpretation obtained by the raters. Hence, affective expressions reflected in these messages as well as other messages falling around (i.e., loading high on) the deactivation pole DE can generally be described by, for example, tranquil, factual, or quiet.

One exemplary phrase that highlights this interpretation would be:

- "as we dont have any issues, dint know what else to write"

Also note that the descriptions of tranquil, factual, or quiet become apparent by judging the length of the negotiation messages (which is comparably short) as well as their rather sparse content.

The location of all of these exemplary messages (as well as those found in the Appendix), in the affective space, is shown in Figure 9. This graphic representation depicts how these messages fall around the geometric space spun by the valence and activation dimensions.

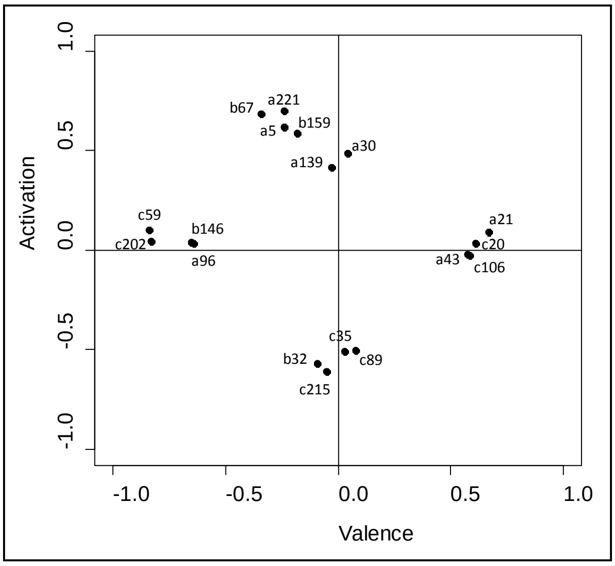

Figure 9. Location of exemplary negotiation messages in the two-dimensional affective space, falling close to the dimensional poles pleasure (P), displeasure (D), activation (AC), and deactivation (DE).

The Activated Pleasure Pole (AP)

Next, we examine the positive pole of the AP/DD dimension, activated pleasure (AP). Note that henceforth the 45° rotated dimensions will be indicated by their counter-poles. Exemplary negotiation messages falling close to and loading high on this dimensional pole are:

Message c109: " Hallo Dear Koller,I am so happy we reaching already an agreement.[…] I can understandyou , becauseboth of us negotiating on behalf of our Companies andhave some hard constraint. […] I am really very thankful that you were answering backwith somecompromises to my concessionsand we are reaching finally a consensus. I am sending you last time my offer and wish you to accept it:) I am sending you a warm greeting from Vienna and confess that it was a hard negotiation, but at the same time a nice one.I enjoyed it a lot, because I should fight for each issue and you made me to know that each of the issue I got it not for free :) With the best regards" (loading on dimension AP/DD = 0.7729; loading on dimension AD/DP = -0.2848)

The raters described the deck containing this message, for example, as: Positive, very happy and glad, informal, amicable, friendly, understanding, joyful, delighted, nice, very friendly and sympathetic, very personal relationship, close, intimate, very nice, courteous, excited, jubilant, elated, too polite, very positive, or lively.

Message c53: "Dear H. Husar,How are you doing? Thank you very much for your willingness to negotiaite our possible cooperation online. I am convinced we will make this a fruitful negotiation and we will come to a wonderfull deal were both parties will be happy. Kind regards,Mrs. Koller" (loading on dimension AP/DD = 0.7009; loading on dimension AD/DP = -0.2799)

The raters described the deck containing this message, for example, as: Very informal, genuine interest, only positive, very happy and glad, amicable, confiding, pleased, optimistic, happy, joyful, nice, caring, friendly, close, sympathetic, very nice, obliging, cordial, very friendly, excited, elated, or hopeful.

Additional negotiation messages are found in Appendix A.5. In general, all of these negotiation messages, as well as other messages falling close to these (and thus to the dimensional pole AP), can be explained in line with traditional interpretations of the activated pleasure pole of the AP/DD dimension. Also note that these messages contain emoticons and special characters, in particular exclamation marks. This is further supported by the interpretation obtained by the raters. Hence, affective expressions reflected in these messages as well as other messages falling around (i.e., loading high on) the activated pleasure pole AP can generally be described by, for example, elated, enthusiastic, lively, or excited.

Some exemplary phrases that highlight this interpretation would be:

- "I am so happy we reaching already an agreement"
- "we will come to a wonderfull deal"
- "I wish you a good day!"
- "It glads me to see that we are getting closer and closer an agreement!"
- "My weekend was great, hope you had an excellent weekend as well"

The Deactivated Displeasure Pole (DD)

Next, we examine the negative pole of the AP/DD dimension, deactivated displeasure (DD). Exemplary negotiation messages falling close to and loading high on this dimensional pole are:

Message c216: "so try to accept my offer)" (loading on dimension AP/DD = -0.7146; loading on dimension AD/DP = 0.0380)

The raters described the deck containing this message, for example, as: Negative attitude, condescending, unfriendly, impolite, impertinent, short and direct, somewhat impolite, frustrated, nerved, egoistic, rather emotionally neutral, disrespectful, very neutral, distant, almost desperate, unconstructive, negative atmosphere yet still respectful, rather displeased, rather disappointed, or rather cold.

Message c169: "Sorry, I can't go along with your conditions. I have no other option then to reject." (loading on dimension AP/DD = -0.6025; loading on dimension AD/DP = 0.2673)

The raters described the deck containing this message, for example, as: Negative attitude, condescending, unfriendly and determinant, impertinent, short and direct, somewhat impolite, frustrated, disapproval, disappointed, neutral, leaving a negative impression, disrespectful, distant, not always polite, direct, perturbed, almost no emotions and neutral, generally tense, slightly negative wording, or dismissive.

Additional negotiation messages are found in Appendix A.6. In general, all of these negotiation messages, as well as other messages falling close to these (and thus to the dimensional pole DD), can be partly explained in line with traditional interpretations of the deactivated displeasure pole of the AP/DD dimension. However, expressions that could be described as tired or drowsy, for example, are not identified, which may also be expected in the context of negotiations. Consequently, the interpretation of affective expressions reflected in these messages as well as other messages falling around (i.e., loading high on) the deactivated displeasure pole DD, is slightly adapted for the case of negotiations. This is further supported by the interpretation obtained by the raters. Affective expressions falling around this dimensional pole are thus generally described by, for example, dull, unmotivated, sluggish, or indifferent.

Some exemplary phrases that highlight this interpretation would be:

- "so try to accept my offer"
- "When you make a good offer to us we will reenter the negotiations"
- "It is eather this or nothing"

The Activated Displeasure Pole (AD)

Next, we examine the positive pole of the AD/DP dimension, activated displeasure (AD). Exemplary negotiation messages falling close to and loading high on this dimensional pole are:

Message b72: "Unfortunetelly i showed you my minimum constraints and you tried to take advantage out of it. I cant make any more concessions because its minimum. You tried to cheat me with wrong numbers of yours (your aspiration level not minimum) and you really think i am willing to deal with that?Dear Mr. Koller![…] Take it, or reject. I cant make more concessions and want too.Greetings Mr. Husar!" (loading on dimension AD/DP = 0.8317; loading on dimension AP/DD = 0.1400)

The raters described the deck containing this message, for example, as: Nerved, angry, annoyed, commanding, threatening, direct, aggressive, very negative, unethical, contempt, offending, attacking, reproachful, impolite, nervous, harsh, evil, negative emotions, frustration, very disrespectful, emotional, disappointed, very angry, demanding, harsh words, or displeased.

Message a171: "Mr. Koller, First you insult me with a totally absurd and ungrounded offer and then you threaten to leave the table.It is me who is feeling you are not serious about making this deal. […] I was hoping you to realize this, not to take the blame myself.[…] we might barely get the required profit from this deal! And yes we are the ones making the major investments here, not Mihalits.Same goes for every point under discussion. You have given me offer that goes so much under my preferences that I cannot even consider it an offer.I am very confused by your actions. How do you suppose me realize anything about your preferences, mind set and reservation levels from such an starting offer. […] Give me a grounded starting offer. Give me any reason behind the numbers and I see there is a reason to negotiate.Yours,Mr. Husar" (loading on dimension AD/DP = 0.8300; loading on dimension AP/DD = 0.0734)

The raters described the deck containing this message, for example, as: Offended, very unhappy, very disappointed, not being realistic, very confused, not serious about making this deal, disappointed, serious, strict, mad, negative feelings, angry, attacked, aggressive, very negative, personal, angry, very annoyed, not pleased at all, threatening, dismissive, too negative, harsh words, offensive, fury, eager for dispute, very emotional, or irritated.

Additional negotiation messages are found in Appendix A.7. In general, all of these negotiation messages, as well as other messages falling close to these (and thus to the dimensional pole AD), can be explained in line with traditional interpretations of the activated displeasure pole of the AD/DP dimension. Also note that these negotiation messages contain special characters, in particular exclamation marks. This is further supported by the interpretation obtained by the raters. Hence, affective expressions reflected in these messages as well as other messages falling around (i.e., loading high on) the activated displeasure pole AD can generally be described by, for example, angry, annoyed, nervous, or anxious.

Some exemplary phrases that highlight this interpretation would be:

- “You tried to cheat me with wrong numbers of yours (your aspiration level not minimum) and you really think i am willing to deal with that?”
- “First you insult me with a totally absurd and ungrounded offer and then you threaten to leave the table”
- “So see our new offer - of course this is a worse offer for you - but that is not our problem - you had the time to make cooperative negotiations with us”
- “I am still wondering about your style of negotiation. On the one hand you are reminding me that we are "negotiation as adults" (strange but okay) and on the other hand you are really crossing the line with statements like:"As nice as you make it seem for us","a bid childish","bid offended that you are not willing to see" and so on. Telling me that I accused you is just far above everything.”

The Deactivated Pleasure Pole (DP)

Next, we examine the negative pole of the AD/DP dimension, deactivated pleasure (DP). Exemplary negotiation messages falling close to and loading high on this dimensional pole are:

Message c95: “dear hauserthnx for the offer...i can finaaly accept the deal....it was nice doing business with u.regardskoller” (loading on dimension AD/DP = -0.6736; loading on dimension AP/DD = 0.1210)

The raters described the deck containing this message, for example, as: The partners are positive, they care about not hurting each other´s feelings, informal, amicable, confiding, content, joy, friendly, friendly but not too personal, sympathetic, neutral but intimate, rational, very polite, personal, nice and casual, positive, constructive, relaxed, or serene.

Message b126: “Dear Mr. Koller,I agree that this is a reasonable agreement. Thank you for your cooperation.Regards, Ms Husar” (loading on dimension AD/DP = -0.5126; loading on dimension AP/DD = -0.0612)

The raters described the deck containing this message, for example, as: Happy, friendly, content, serene, accommodating, interested, respect, polite, relieved, or nice.

Additional negotiation messages are found in Appendix A.8. In general, all of these negotiation messages, as well as other messages falling close to these (and thus to the dimensional pole DP), can be explained in line with traditional interpretations of the deactivated pleasure pole of the AP/DD dimension. This is further supported by the interpretation obtained by the raters. Hence, affective expressions reflected in these messages as well as other messages falling around (i.e., loading high on) the deactivated pleasure pole DP can generally be described by, for example, serene, content, relaxed, or at ease.

Some exemplary phrases that highlight this interpretation would be:

- “it was nice doing business with u”
- “I'm also looking forward to cooperate with you. I also like your your way of justifying all your points”
- “Here is something to concider for some real cooperation: You can notice my preferences from the order I presented my attributes.”
- “I agree that this is a reasonable agreement. Thank you for your cooperation”
- “I hope that everything is clear about the upcoming two weeks. If not, I am available for questions. I will try to answer them as fast as I can.”

The locations of all the exemplary messages used to identify and describe the 45° rotated dimensions in the affective space, are shown in Figure 10. This graphic representation depicts how these messages fall around the geometric space spun by the AP/DD and AD/DP dimensions.

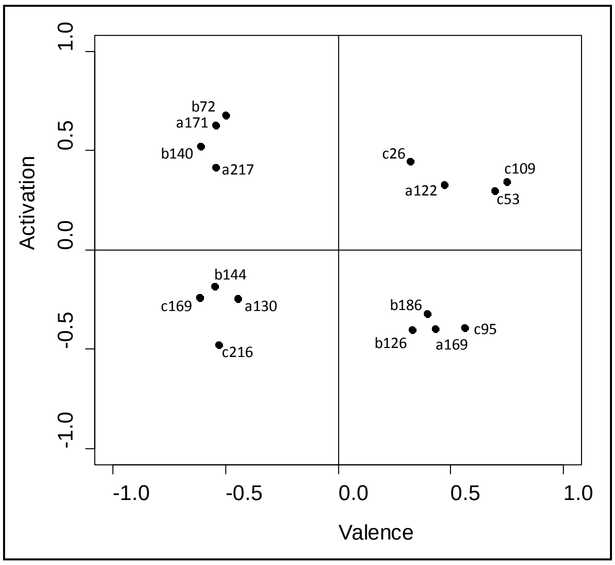

Figure 10. Location of exemplary negotiation messages in the two-dimensional affective space, falling close to the dimensional poles activated pleasure (AP), deactivated displeasure (DD), activated displeasure (AD), and deactivated pleasure (DP).

Figure 11 shows all the messages depicted in Figure 9 and 10 combined.

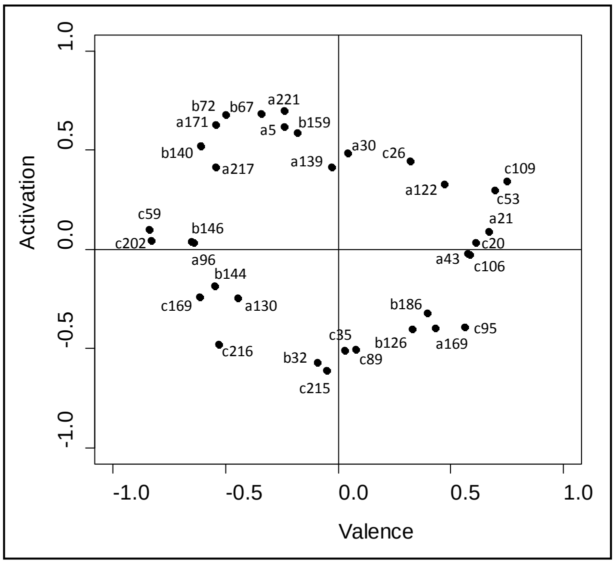

Figure 11. Location of exemplary negotiation messages in the two-dimensional affective space scattered around the primary affective dimensions of valence and activation, as well the secondary 45° rotated affective dimensions of AP/DD and AD/DP.

In sum, it is shown that negotiation messages can be meaningfully interpreted with respect to affective expressions, in line with a two-dimensional model of affect. Hence, the present work also provides empirical evidence that affective behaviors can be adequately analyzed from text-based negotiation messages, in line with a two-dimensional (circumplex) structure of affect. The subsequent analyses of affective expressions can thus be based on the identified affective dimensions. In particular, we asses affective expressions based on the primary valence and activation dimensions, as well as on the 45° rotated secondary AP/DD and AD/DP dimensions, to provide a more complete and comprehensive picture. Figure 12 further provides a graphic overview of the location of all the above described dimensional poles in the space of affect, in line with exemplary affective expressions that characterize these. As in Figure 8, the data dots represent all negotiation messages that are analyzed in the present work.

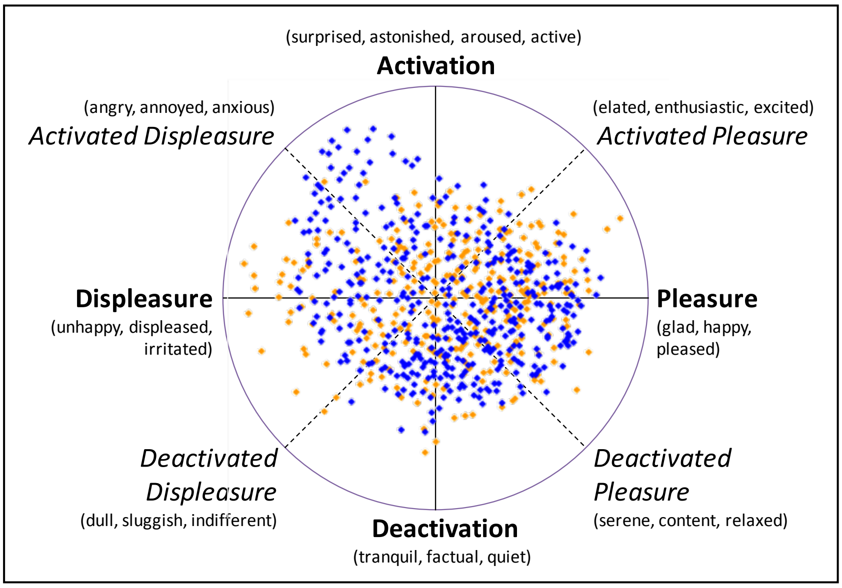

Figure 12. Overview of all negotiation messages in the two-dimensional affective space, and summary of dimensional poles with exemplary affective expressions.

D.4. Phase Modeling

Phase modeling is one method that can be used to investigate the negotiation process with regard to its procedural (or temporal) dynamics. As summarized by Koeszegi, Pesendorfer, and Vetschera (2011), other methods that are used to analyze the negotiation process are frequency analysis (Olekalns et al., 2003; Weingart & Olekalns, 2004), sequence analysis (Brett et al., 2004; Druckman, 1986), discourse analysis (Brown & Yule, 1983), or time series analysis (Gottman, 1979). As already elaborated in chapter B.2.4, particularly frequency and sequence analysis should be considered as potentially interrelated with each other as well as with phase analysis, rather than as strictly separated methods of analysis. The advantage of phase analysis over time-series analysis is that it is based on the division of the negotiation process into easily comparable entities (Koeszegi et al., 2011). For more information regarding the remaining methods of analysis the reader is referred to Koeszegi and Vetschera (2010) and Koeszegi, Pesendorfer, and Vetschera (2011).

D.4.1. Stage Models and Episodic Models

With respect to phase modeling, two substantial theoretical and interrelated methodological issues are raised by Holmes (1992). On a theoretical level it is important to address the issues of "what constitutes a phase? [and] what dynamics generate changes in interaction from phase to phase" (Holmes, 1992: 94). Related to these, two further methodological questions should be addressed, namely "how do we identify phases? [and] how do we compare phase sequences?" (Holmes, 1992: 98). The answers to the questions at the methodological level are based on those at the theoretical level, which further result from two definitions and conceptualizations of phase models, that is, stage models and episodic models (Holmes, 1992). Note that stage models are sometimes also referred to as interval approach, whereas episodic models are also referred to as event driven approach, of data aggregation (Adair & Brett, 2005).

When phases are defined as stages, it is assumed that negotiations can be split into "period[s] of interaction dominated by particular communicative acts or negotiation functions" (Holmes, 1992: 94). Consequently, it is argued that the negotiation process evolves over distinct stages that fade into each other, which, however, also means that these stages cannot be clearly separated from each other. Nevertheless, a stage is described by its predominant substance and content, such as integrative or distributive behaviors (Putnam, 1990). Also, stage models presume that the evolvement of the negotiation process follows a pre-defined number of stages of pre-defined quality. In that sense, these models are driven by the process (or time) as they aim at splitting the negotiation process into a priori defined intervals (Olekalns et al., 2003). Moreover, research that is based on the analysis of strategic acts, frequencies, ratios, or sequences of behavioral interactions or strategies, relies on stage models of negotiations (Holmes, 1992; Olekalns, 2002). Accordingly, the phase model outlined in chapter B.2.4 would basically represent a stage model of negotiations.

When phases are defined as episodes, it is assumed that the structure of interaction is explained by explicit and clear boundaries of the negotiation phases (Holmes, 1992). Consequently, an episodic definition presumes that each episode is described only by comparably similar behaviors and communications (Weingart & Olekalns, 2004). In that sense, each episode has a distinct end as well as beginning and literally summarizes an "episode" of the negotiation process the negotiators have to pass through jointly. Thus, episodic models are driven by content, with changes in content or strategy indicating a shift from one episode to another (Olekalns, 2002; Olekalns et al., 2003). Moreover, episodes can be interconnected in a cyclical manner, which means that they may repeat themselves if negotiators move back to a previously concluded episode (Koeszegi et al., 2011; Olekalns et al., 2003).

In comparison, stages are assumed to evolve and fade into each other rather smoothly, whereas episodes are strictly separated from each other (Olekalns, 2002). Since episodes are assumed to be internally consistent and unambiguous, it is further concluded that transitions between these are more easily triggered (Olekalns et al., 2003) than between stages. Relatedly, negotiation stages are rather fixed in terms of their conceptualization and sequential dynamics, whereas negotiation episodes are regarded as more flexible, because they may vary in length and order (Weingart & Olekalns, 2004). As pointed out by Koeszegi and Vetschera (2010), stage models are used more prominently than episodic models, since they are less complex and require less data. Their disadvantages, however, are that the negotiation process is split into a more or less arbitrary number of fixed entities, which may mask more fine-grained effects within negotiation stages, and complicate or hinder comparisons of cases of different lengths by aggregating different amounts of data (Holmes, 1992; Poole, 1981). Hence, when relying on stage models for the analysis of the negotiation process, one of the most critical decisions is that of stage length, or how to divide the negotiation process (Brett et al., 2004). With respect to this issue Brett, Weingart, and Olekalns (2004) further point out that the length of negotiation stages should be long enough but not too long, meaning that it needs to be possible to meaningfully analyze sequences or strategic acts while not overseeing them or averaging them away by aggregating over too much data (this issue was already partly addressed when discussing the appropriate number of phases necessary to summarize the negotiation process in chapter B.2.4). Note that the presumption of stage models is to split every negotiation into the same, equally sized, phases.

D.4.2. The Identification of Negotiation Phases in the Present Case

As already indicated, the theoretical conceptualization of and justification for a three-phase model was provided in chapter B.2.4. The methodological identification of negotiation phases, in line with this conceptualization, is elaborated further in the present chapter. With respect to this issue, Vetschera (2013) highlights that often phase analysis is approached by simply splitting the negotiation into equally sized stages, which, however, can be considered as rather pragmatic or even arbitrary solution. Koeszegi, Pesendorfer, and Vetschera (2011) proposed a new approach to better solve this problem by integrating stage models and episodic models of negotiations. In particular, they propose to split each individual negotiation into the same number of negotiation phases, whereas the length (e.g., in terms of time, or utterances) of each phase may vary, also from negotiation to negotiation. Consequently, negotiation phases are not the result of an arbitrary split-decision but are "customized" to each negotiation case, while negotiation cases still remain comparable with each other due to the fixed number of phases. The authors motivate this necessity by pointing out that each negotiation process is the result of a unique pattern that needs to be treated individually. To accomplish this goal, negotiation phases are identified endogenously by assessing the negotiation content. The split points between negotiation phases are obtained by maximizing the dissimilarity between phases with respect to the analyzed content. In addition to negotiation content, phases can also be identified by investigating communication acts or offers (Vetschera, 2013). The present work relies on the latter for doing so. More specifically, we identify phases and their split points by maximizing the dissimilarity between phases with respect to the Contract Imbalance (CI). The CI is calculated as the absolute value of the difference between the utility values of the negotiators for one offer. Again note that the number of negotiation phases needs to be specified prior to determining their split points. This is done in chapter B.2.4, where the justification for using a three-phase model is presented, based on previous theoretical as well as empirical research findings.

Put in more general terms, proper phase analysis rests upon a theoretical foundation necessary to identify the number, function, and quality of negotiation phases. Subsequently one needs to decide, on a methodological level, how to achieve the theoretically defined goal and split the negotiations into phases (Holmes, 1992). One example for a theoretically well grounded phase model is the one provided by Adair and Brett (2005), which proposes four negotiation phases. The methodological realization of what is proposed theoretically, however, is of pragmatic nature, which means that negotiations were split into equally sized phases based on negotiation duration measured in minutes. Further, the authors note that this procedure provides a rather conservative basis for the examination of data and the testing of hypotheses. Consequently, the approach proposed by Koeszegi, Pesendorfer, and Vetschera (2011), and utilized in the present work, is a very useful tool to capture negotiation phases in a more appropriate manner. One additional advantage of using the presented data-driven method in the present case is the shortage of research regarding the negotiation process of electronic negotiations (Koeszegi et al., 2011; Pesendorfer et al., 2007). In other words, since empirical evidence regarding the length of negotiation phases is missing in this area, a data-driven approach will provide more justifiable results than arbitrary chosen split-points.

D.5. Testing for Indistinguishability

Before we move on to the presentation and inspection of the results, one further issue regarding the nature of the underlying data needs to be addressed. In particular, we need to determine whether the members of a dyad (i.e., the two negotiators) should be treated as distinguishable or indistinguishable. This is important insofar as the appropriate techniques of data analysis differ with respect to this decision (Kenny & Cook, 1999; Kenny, Kashy, & Cook, 2006; Kenny & Ledermann, 2010). A straightforward example for distinguishable dyads would be mixed sex dyads (i.e., man and woman), while an example for indistinguishable dyads would be same sex dyads. Hence, distinguishability means that the members of a dyad (i.e., the negotiators) can be distinguished, ordered, or classified, in a meaningful manner by a "meaningful factor" (Kashy, Donnellan, Burt, & McGue, 2008; Kenny et al., 2006; Kenny & Ledermann, 2010). The decision of whether or not such a "meaningful factor" exists should be based on theoretical as well as empirical considerations (Kashy et al., 2008; Kenny & Ledermann, 2010). Consequently, a meaningful distinction between the members of a dyad should be justifiable theoretically, and should also be expected or shown to make a difference empirically.

In the present case, the negotiators of a dyad are representatives of two different fictitious companies. Thus, it could be assumed that this represents a "meaningful factor" to clearly distinguish the negotiators from each other. Upon second thought, however, it might be questionable to assume different affective behaviors and expressions on the basis of this distinction. Hence, in the present case, as in many other cases, the distinction of whether the negotiators should be regarded as distinguishable or indistinguishable is not as straightforward as it may initially seem (Kenny & Cook, 1999; Kenny & Ledermann, 2010). Consequently, we additionally need to test whether the negotiators should be treated as distinguishable or not, as recommended by Kashy, Donnellan, Burt, and McGue (2008). In general, we assume that the negotiators should be treated as indistinguishable, since we do not expect to observe different affective expressions and behaviors depending on which fictitious company a negotiator represents. Also, indistinguishability is advantageous for data analysis, since it "increases the precision of estimates and statistical power" (Kashy et al., 2008: 317), due to the possibility of pooling estimates (Kenny et al., 2006).

A first descriptive indicator of whether negotiators within dyads could be treated as distinguishable or indistinguishable is the examination of the mean values and standard deviations (with respect to the variables that are further analyzed) of the groups that are formed by the potentially distinguishing factor (Kenny et al., 2006). These are shown in Table 4, for each of the three identified negotiation phases, for the primary affective dimensions of valence and activation as well as for the secondary 45° rotated dimensions of AP/DD and AD/DP.

Table 4

Descriptive Statistics of affect per Negotiator

	N	Mean	Std. dev.		N	Mean	Std. dev.
Phase 1				Phase 1			
Valence (n1)	57	0.1316	0.1827	AP/DD (n1)	57	0.0454	0.2019
Valence (n2)	57	0.0871	0.2450	AP/DD (n2)	57	0.0797	0.2161
Activation (n1)	57	-0.0651	0.1596	AD/DP (n1)	57	-0.1391	0.1350
Activation (n2)	57	0.0263	0.1692	AD/DP (n2)	57	-0.0436	0.2048
Phase 2				Phase 2			
Valence (n1)	57	-0.0387	0.2085	AP/DD (n1)	57	-0.0094	0.1681
Valence (n2)	57	-0.1251	0.2243	AP/DD (n2)	57	-0.0803	0.1760
Activation (n1)	57	0.0248	0.1793	AD/DP (n1)	57	0.0448	0.2177
Activation (n2)	57	0.0103	0.2029	AD/DP (n2)	57	0.0964	0.2460
Phase 3				Phase 3			
Valence (n1)	57	-0.0303	0.2621	AP/DD (n1)	57	-0.0089	0.2101
Valence (n2)	57	0.0009	0.3020	AP/DD (n2)	57	0.0202	0.2594
Activation (n1)	57	0.0172	0.2105	AD/DP (n1)	57	0.0335	0.2624
Activation (n2)	57	0.0269	0.2595	AD/DP (n2)	57	0.0181	0.3022

As found in Table 4, the similarities of mean values and standard deviations for the two groups of negotiators indicate that the negotiators should be treated as indistinguishable. Further, we test for equality of variances between the groups formed by the potentially distinguishing factor (Kenny et al., 2006). The tests for the equality of variances need to be adapted for the analysis of a dyadic reciprocal design, since the negotiators (and thus their scores on the variables) are nonindependent (Kenny et al., 2006). Note that the issue of nonindependence is further elaborated in the next chapter D.6. As outlined by Kenny, Kashy, and Cook (2006) we thus correlate the sum of the negotiators' scores (i.e., $X_{n1}+X_{n2}$) and the difference of their scores (i.e., $X_{n1}-X_{n2}$), in order to test for a difference in variances. The respective tests for statistical significance are shown in Table 5, again for each of the three identified negotiation phases, for the primary affective dimensions of valence (V) and activation (A) as well as for the secondary 45° rotated dimensions of AP/DD and AD/DP.

Table 5

Tests for Differences in Variances (to Test for Indistinguishability)

	N	Corr. coef.	Sig.		N	Corr. coef.	Sig.
Phase 1				Phase 1			
Corr. (Valence)	57	.294	.026	Corr. (AP/DD)	57	.068	.616
Corr. (Activation)	57	.058	.666	Corr. (AD/DP)	57	.402	.002
Phase 2				Phase 2			
Corr. (Valence)	57	.076	.573	Corr. (AP/DD)	57	.047	.729
Corr. (Activation)	57	.126	.351	Corr. (AD/DP)	57	.127	.347
Phase 3				Phase 3			
Corr. (Valence)	57	.157	.242	Corr. (AP/DD)	57	.232	.082
Corr. (Activation)	57	.216	.107	Corr. (AD/DP)	57	.149	.270

These results generally indicate that the variances for the variables to be analyzed (i.e., the affective dimensions) do not differ significantly for the negotiators. Overall, the findings for the means, standard deviations, and variances for the two negotiators lead us to conclude that the negotiators should be treated as indistinguishable, which consequently is the basis for the further analyses. In addition, we will also provide tests of distinguishability when introducing the results in part E, which will provide further justification for treating dyad members (i.e., negotiators) as indistinguishable.

D.6. The Actor-Partner Interdependence Model (APIM)

In the present work we investigate dyadic negotiations, which means that the underlying data represent social interactions between two negotiators. Consequently, we are dealing with nonindependent data, since the behaviors, communicative acts, and affective behaviors of the negotiators are very likely to be interrelated (Kenny & Cook, 1999; Liu & Wilson, 2011; Turel, 2010). This nonindependence of the data should not be ignored (Kashy & Kenny, 2000; Kenny & Cook, 1999), which, however, also poses new challenges for data analysis (Kenny & Cook, 1999). One of the most appropriate ways to address the arising challenges in the present case is to use the Actor-Partner Interdependence Model (APIM) (Cook & Kenny, 2005; Kashy & Kenny, 2000; Kenny, 1996a; Kenny & Cook, 1999; Kenny et al., 2006), which is a statistical model tailored to the analysis of dyadic interaction data. All of these issues are elaborated further subsequently.

D.6.1. Nonindependence and Interdependence of Dyadic Interaction Data

First of all, with respect to the issue of nonindependence, it is worth noting that this characteristic of dyadic interaction data was, and still is, treated as “nuisance” that needs to be statistically corrected or controlled for (Gonzalez & Griffin, 2004; Kashy & Kenny, 2000). However, if we want to understand and analyze social interactions, it is exactly this “nuisance” that we are and should be interested in, since it largely explains important social aspects of an interaction process (Gonzalez & Griffin, 2004; Kashy & Kenny, 2000) as, for example, the synchrony or influence of (affective) behaviors. Gonzalez and Griffin (2004) highlight this issue by suggesting to talk about interdependence instead of nonindependence, if we are interested in examining aspects of nonindependence rather than simply to control for these. In both cases (being interested in the assessment of interdependence vs. controlling for nonindependence) the statistical models to be employed are comparable at a fundamental level, yet the treatment of the phenomenon as well as the derived conclusions differ (Gonzalez & Griffin, 2004). Thus, in order to be able to investigate, rather than control for, interdependence it is important to rely on appropriate and suitable methods of analysis. Traditional statistical approaches, such as regression or ANOVA, are not suitable for doing so, since they only allow to control for nonindependence and to focus either only on one individual of a dyad, or on the dyad in terms of an aggregate measure, which would disregard individual effects altogether (Butt et al., 2005). Negotiation research is still limited due to this reason, which also means that the central driving force of any negotiation encounter, that is, the social interaction between the negotiators, is still under-researched (Turel, 2010).

D.6.2. The Problems of Ignoring Interdependence

Relying on traditional statistical approaches, and thus ignoring interdependence, basically results in two fundamental problems regarding the analysis of dyadic social interactions in general and negotiations in particular. First, treating the underlying dyadic data, and thus the negotiators that interact with each other, as independent by focusing only on one negotiator of a dyad at a time, can have an impact on the results of the statistical analysis (Cook & Kenny, 2005; Cook & Snyder, 2005; Kenny, 1995, 1996a; Laurenceau & Bolger, 2005; Liu & Wilson, 2011; Overbeck et al., 2010; Turel, 2010; Van Dulmen & Goncy, 2010; West, Popp, & Kenny, 2008). Particularly, test statistics and the related significance tests can be biased, and degrees of freedom can be inaccurate (Cook & Kenny, 2005; Kenny, 1995, 1996a; Kenny & Judd, 1986). As a consequence, the results can be misleading because the significance tests are more likely to be biased by Type I errors (i.e., being too liberal) or by Type II errors (i.e., being too conservative) (Cook & Snyder, 2005; Kenny, 1995; Kenny & Judd, 1986). Second, focusing solely on the dyad as unit of analysis by, for example, averaging or summing up the scores of the dyad members, can distort the results due to oversimplification (Cook & Kenny, 2005), since it treats the dyad as a “black box” (Overbeck et al., 2010: 137) and thus makes it impossible to investigate effects related to the individual members of the dyad. Using dyad level scores, or related dyad level analyses, for example, based on matched pairs or repeated measures, does, however, not produce biased significance tests (Kenny, 1995). In this respect Kenny (1995) also notes that when dyad members are indistinguishable, some dyad level measures or analysis run into problems since then it is unknown whose scores reflect the scores of dyad member 1 and whose scores reflect the scores of dyad member 2. Nevertheless, using dyad level measures prevents us from exploring negotiations at their fundamental level, that is, in terms of the social interaction that emerges between the negotiators (Turel, 2010).

D.6.3. Embracing Interdependence: Using the APIM

We wish to avoid the two above described problems by using a statistical method of analysis that is "more suitable" for the analysis of social interactions than traditional statistical approaches. Gonzalez and Griffin (2004), for example, suggest the latent dyadic model and the APIM, which are both multilevel models that are statistically and mathematically related, yet of different interpretative foci. The latent dyadic model allows us to assess intra-dyadic effects between similarities on different variables, while the APIM estimates intra-personal and inter-personal effects. Since we are interested in the latter, and since the APIM was already successfully used for the analysis of these effects, we are explaining it in more detail below and using it for our purposes.

In general, the application and applicability of the APIM is explained by Kenny and colleagues (Cook & Kenny, 2005; Kashy & Kenny, 2000; Kenny & Cook, 1999; Kenny et al., 2006). It is gaining empirical importance in social and psychological disciplines, for the analysis of families, couples, or relationships (Badr & Acitelli, 2008; Barry & Kochanska, 2010; Campbell & Kashy, 2002; Campbell, Simpson, Kashy, & Rholes, 2001; Cillessen, Jiang, West, & Laszkowski, 2005; Cook & Snyder, 2005; Kenny & Cook, 1999; Knobloch & Theiss, 2010; Ko & Lewis, 2010; Luo et al., 2008; McIsaac, Connolly, McKenney, Pepler, & Craig, 2008; Mellon, Kershaw, Northouse, & Freeman-Gibb, 2007; Nelson, O'Brien, Blankson, Calkins, & Keane, 2009; Pesonen, Räikkönen, Heinonen, Järvenpää, & Strandberg, 2006; Peterson, Pirritano, Christensen, & Schmidt, 2008; Ramirez, JR., 2008; Rayens & Svavarsdottir, 2003; Spain, Jackson, & Edmonds, 2012; Stroud et al., 2010; Theiss & Knobloch, 2009; Theiss & Solomon, 2006), and for the analysis of affect (Adams, Bukowski, & Bagwell, 2005; Badr & Acitelli, 2008; Barry & Kochanska, 2010; Butler et al., 2003; Campbell et al., 2001; Cook & Snyder, 2005; Knobloch & Theiss, 2010; Ko & Lewis, 2010; Luo et al., 2008; Mellon et al., 2007; Nelson et al., 2009; Pesonen et al., 2006; Stroud et al., 2010; Theiss & Solomon, 2006; Vittengl & Holt, 2000). In negotiation research the APIM is, however or unfortunately, still used rather sparsely (Turel, 2010), "although it is extremely well suited for analyzing negotiation data" (Overbeck et al., 2010: 131), as its applications in comparable dyadic contexts show. Also, some of its few applications in the field of negotiation research support this point (Bronstein, Nelson, Livnat, & Ben-Ari, 2012; Butt et al., 2005; Curhan & Pentland, 2007; Liu, 2009, Liu & Wilson, 2011, 2011; Overbeck et al., 2010; Turel, 2010) (Liu,ÈOverbecketal.,É. With respect to the present research endeavor, the analysis of affective stimuli in negotiations (put very generally), even less applications are available (Butt et al., 2005; Liu, 2009; Overbeck et al., 2010).

D.6.3.a. Related Applications of the APIM

One available application is provided by Butt, Choi, and Jaeger (2005) who conducted FtF negotiation simulations to examine the impact of "self-emotion, counterpart emotion, and counterpart negotiation behavior" (Butt et al., 2005: 683) on negotiation behavior and outcomes. Negotiation behaviors were conceptualized in line with the dual concern model

(Pruitt & Rubin, 1986) and measured via questionnaires after the negotiation simulations, as were emotions. Liu (2009) conducted FtF negotiation simulations to assess the impact of a negotiator's anger on his or her own use of distributive and integrative negotiation strategies, as well as on his or her negotiation partner's use of distributive and integrative negotiation strategies. Negotiation strategies were measured by content analyzing transcripts of the negotiation simulations and emotions were measured via questionnaires after the negotiation simulations. Overbeck, Neale, and Govan (2010) conducted FtF negotiation simulations to investigate the impact of a negotiator's anger and happiness on his or her own as well as on his or her counterpart's tendency to create and claim value. Value creation and value claiming were measured by quantitatively assessing the achieved contract details and the emotions of anger and happiness were measured via post-negotiation questionnaires as well as by coding negotiation transcripts. These applications will be discussed in terms of their strengths and weaknesses with respect to their contributions in relation to the present research, after explaining the APIM in more detail for better understanding.

D.6.3.b. Explaining the APIM

One of the most central reasons why the APIM suits the analysis of dyadic social interactions, and thus negotiations, extremely well (Overbeck et al., 2010), is because it allows us to handle and analyze aspects of interdependence in the underlying data (Cook & Kenny, 2005; Kashy & Kenny, 2000; Kenny & Cook, 1999; Kenny et al., 2006). Using the APIM thus helps us to avoid the two previously outlined problems that are the result of handling interdependent data wrongly. Consequently, it helps us to embrace, rather than ignore, the fact that measures can vary within as well as between dyads (Turel, 2010). Put differently, the APIM allows us to use and investigate (effects of) mixed predictor variables (Kenny et al., 2006), which is important (since their existence is common) in negotiations (Turel, 2010). Recognizing the mixed nature of variables and using them appropriately thus enables us to research the negotiation process with more precision by addressing the beforehand mentioned problems (Cook & Snyder, 2005; Overbeck et al., 2010). Moreover, dealing with mixed variables means dealing with nested data (and vice versa) (Cook & Kenny, 2005). In the present case this means that negotiators are nested within negotiation dyads, or in multilevel modeling terms, negotiators are to be treated as level 1 (or lower-level) units and negotiation dyads are to be treated as level 2 (or upper-level) units (Spain et al., 2012). This nesting or hierarchical treatment of different units of analysis allows us to assess effects at both levels and thus to analyze negotiation processes in their entirety (Barsade, 2002; Butt et al., 2005). In more detail, the APIM is based on the dyad as unit of analysis and allows us to assess more fine grained effects at the intra-personal and/or inter-personal levels (Cook & Kenny, 2005; Kashy & Kenny, 2000; Kenny, 1996a; Kenny & Cook, 1999; Kenny et al., 2006). Intra-personal effects are referred to as actor effects, which denote "the influence of a person's own causal variable on his or her own outcome variable" (Kenny & Ledermann, 2010: 359). Inter-personal effects are referred to as partner effects, which denote "the influence of a person's own causal variable […] on the outcome variable of the partner" (Kenny & Ledermann, 2010: 359). Consequently, actor effects are effects of stability or self-influence and partner effects are effects of influence or interdependence measures (Cook & Kenny, 2005; Cook & Snyder, 2005).

Cook and Snyder (2005) and Cook and Kenny (2005) further note that from a methodological point of view, the estimations of actor and partner effects are also based on the correlations of the predictors as well as the residuals. The correlation of the predictors provides a way for estimating one effect (i.e., an actor or partner effect) while controlling for the other. The correlation of the residuals ensures that interdependence is accounted for beyond the explanatory power of the predictors. The importance of these correlations is highlighted by Kashy and Kenny (2000) by explaining two alternative methods for analyzing variables of mixed nature. The first method requires an “individual level” analysis (i.e., predicting a person’s dependent measure from his or her independent measure) and a separate “group level” analysis (i.e., predicting the group mean of the dependent measure from the group mean of the independent measure). The problem with such an approach is that “the results from the individual-level analysis are partially confounded with the results from the group-level analysis” (Kashy & Kenny, 2000: 461). Also, because the interdependence of the dependent measures is disregarded, the individual-level tests of significance are biased. The second method, contextual analysis, requires to use both, a person’s “individual level” measure and the “group level” measure as predictors for a person’s “individual level” dependent measure. The problem with this approach again is that the interdependence of the dependent measures is disregarded.

Thus, overall the APIM is a powerful tool for the analysis of interdependent data, and to be preferred over “more traditional” methods of analysis. Finally, when choosing to use the APIM, it is also important to consider whether dyad members are to be treated as distinguishable or indistinguishable, since the configuration of the model differs in both cases. As explained in chapter D.5, we are dealing with indistinguishable dyad members and will thus apply the required configurations. For more information on this issue the reader is referred to Gonzalez and Griffin (2004) or Kenny, Kashy, and Cook (2006).

D.6.3.c. The Bottom Line

To conclude, we are coming back to the available applications of the APIM for the analysis of affect in negotiations (Butt et al., 2005; Liu, 2009; Overbeck et al., 2010). As already outlined in previous chapters, the analysis of emotions and emotion-related states in negotiations was and still is mostly concentrated on individual effects (i.e., either actor or partner effects) in isolation from each other, or on overall dyad level effects (e.g., dyadic mean values). One central reason for these simplifications, and hence for the disregard of interdependence, was the lack of appropriate methods of analysis. With the introduction of the APIM, however, an appropriate toolkit for handling and analyzing effects of interdependence became available. Yet, the analysis of affect in negotiations is still largely driven by the “old” or “traditional” analytical doctrine of independence, with three notable exceptions (Butt et al., 2005; Liu, 2009; Overbeck et al., 2010). In the light of the current research endeavor, the analysis of the dynamics of affective behaviors in text-based online negotiations, these pieces of research that investigate socio-emotional aspects of negotiations by dealing with interdependence in an appropriate manner do, however, not address certain aspects that we are interested in. First, these studies assess the impact of felt affect (Butt et al., 2005; Liu, 2009; Overbeck et al., 2010) or of emotional expressions of happiness and anger (Overbeck et al., 2010) on behaviors. The present work is focused on the impact of affective behaviors on subsequent affective behaviors. Also, the conceptualization and in particular the measurement of affect via questionnaires may be a limitation of these works. Furthermore, we address the procedural dynamics of the negotiation process (i.e., we include a temporal level) to assess the negotiation process over time, while the three mentioned studies did not investigate whether the examined effects may change in and over the negotiation process. Finally, the present work breaks new ground by analyzing the affective behaviors in text-based online negotiations from a more dynamic perspective, also in line with an APIM. In addition, the investigation of affective behaviors with respect to negotiation success or failure, as well as the investigation of the impact of a DSS is an additional benefit of the present work.

PART E – Data Analysis and Results

The data analysis is divided into several parts, due to the complexity of the research design and the multitude of effects that are to be investigated, in line with the presented research framework (chapter D.2). We begin by providing a quick overview of the data via descriptive statistics in chapter E.1. This is followed by the analysis of affective behaviors at the collective (or dyadic) level for successful and failed negotiations (chapter E.1), as well as the investigation of the potential impact of decision support on affective behaviors at this aggregate level of analysis (chapter E.2). Then, the analysis of synchrony of affective behaviors within negotiation phases is approached for successful and failed negotiations (chapter E.3), as well as for negotiations with and without decision support in successful and failed negotiations (chapter E.4). Subsequently, effects of intra-personal and inter-personal influence of affective behaviors (i.e., actor and partner effects) between negotiation phases are examined for successful and failed negotiations (chapter E.5), as well as for negotiations with and without decision support in successful and failed negotiations (chapter E.6). Each of these chapters is concluded with an intermediary discussion of the provided results for the examined effects. An integrated discussion is provided in the chapters E.7 and E.8, for the overall analysis of successful and failed negotiations, as well as the impact of decision support in and on successful and failed negotiations, respectively. Also note that affective behaviors are always investigated based on the primary affective dimensions of valence and activation, as well as the 45° rotated secondary dimensions of AP/DD and AD/DP, as outlined in chapter D.3.

E.1. Dyad Level Results: Successful and Failed Negotiations

First, we examine the procedural dynamics (as outlined theoretically in chapter B.2.4) of affective behaviors at the dyad level, and investigate whether these differ between successful and failed negotiations. Thus, the following sections seek to answer RQ1 (Do affective behaviors show different patterns of evolvement over time in successful and failed negotiations?), and address the related hypotheses. To do so, we start by providing some initial descriptive statistics, which are followed by graphical representations of the data, the investigation of mean values via t-tests, and the investigation of procedural (or temporal) patterns via repeated measures ANOVAs.

We begin by investigating the overall results from the descriptive statistics for the entire dataset, summarized in Table 6. Note that the presented values are based on dyad level averages (i.e., the mean values of the scores of both negotiators within a negotiation dyad). We cannot examine the values for the negotiators individually, since the dyad members are treated as indistinguishable (as explained in chapter D.5). Consequently, what we can observe for now is the dyad level average of affective behaviors (or the affective climate). The analysis of affective behaviors at this aggregate level, nevertheless, enables us to investigate whether affective behaviors generally (on an aggregate level) change from one negotiation phase to another (i.e., over time), as well as the direction of a potential change.

Table 6

Descriptive Statistics: Data Overview (Overall)

Affective dimension	Phase	N	Min.	Max.	Mean	Std. dev.
Valence	All	57	-0.2598	0.2895	0.0057	0.1353
Activation	All	57	-0.1970	0.2793	0.0045	0.0936
Valence	Ph1	57	-0.2993	0.3890	0.1093	0.1645
Activation	Ph1	57	-0.2562	0.1695	-0.0269	0.1110
Valence	Ph2	57	-0.3633	0.2780	-0.0818	0.1701
Activation	Ph2	57	-0.2682	0.3354	0.0177	0.1467
Valence	Ph3	57	-0.5602	0.4395	-0.0105	0.2391
Activation	Ph3	57	-0.3871	0.4809	0.0227	0.1899
AP/DD	All	57	-0.2513	0.2241	0.0072	0.1108
AD/DP	All	57	-0.2388	0.2477	-0.0009	0.1216
AP/DD	Ph1	57	-0.3291	0.3339	0.0572	0.1532
AD/DP	Ph1	57	-0.3317	0.2257	-0.0965	0.1264
AP/DD	Ph2	57	-0.3169	0.2633	-0.0447	0.1321
AD/DP	Ph2	57	-0.2806	0.3950	0.0706	0.1816
AP/DD	Ph3	57	-0.4541	0.4310	0.0090	0.1980
AD/DP	Ph3	57	-0.4214	0.4658	0.0233	0.2325

In Table 6 we observe that the mean values of dyad level averaged affective behaviors (or the affective climate) generally changes over the three negotiation phases. Inspecting the dimension of valence, for example, indicates that affective behaviors seem to become more negative from phase 1 to phase 2, and again more positive from phase 2 to phase 3. However, to gain a clearer understanding of affective behaviors we wish to distinguish between successful and failed negotiations, which is done in more detail subsequently.

E.1.1. Dyad Level Results for Successful Negotiations

A more informative overview of the data is provided in Table 7, which shows descriptive statistics for all successful negotiations only. Further, the column "T-test against 0" shows the results of t-tests, testing whether the mean is significantly greater or smaller than zero (i.e., the results of one sided t-tests). For example, for the dimension of valence this means that mean values significantly greater than zero indicate that affective behaviors can be characterized by the right half (i.e., the pleasure half) of the affective space, whereas mean values significantly smaller than zero indicate that affective behaviors can be characterized by the left half (i.e., the displeasure half) of the affective space. "Not sig." would indicate that the mean is not significantly different from zero. Also note that the p-values of the t-tests for affective behaviors are adjusted if multiple (and similar) t-tests are performed. As suggested (cf. Rice, 1989) the groups of tests for which adjustments were made simultaneously are formed by each of the affective dimensions. In particular, we use the False Discovery Rate (FDR) (Benjamini & Hochberg, 1995) to control for type I errors. The FDR is preferred over the traditional Bonferroni procedure, because it also handles the problem of increasing type II errors (Benjamini, Drai, Elmer, Kafkafi, & Golani, 2001; Genovese & Wasserman, 2002;

Verhoeven, Simonsen, & McIntyre, 2005). The respective adjusted significance values are denoted as “$p_{adj.}$” henceforth.

Table 7

Descriptive Statistics: Data Overview (Successful Negotiations)

Affective dimension	Phase	N	Min.	Max.	Mean	Std. dev.	T-test against 0
Valence	All	38	-0.1715	0.2895	0.0544	0.1193	Greater than 0 ($p_{adj.}$=.004)
Activation	All	38	-0.1971	0.2139	-0.0049	0.0914	Not sig.
Valence	Ph1	38	-0.2993	0.3890	0.1407	0.1592	Greater than 0 ($p_{adj.}$=.000)
Activation	Ph1	38	-0.1904	0.1695	-0.0085	0.1055	Not sig.
Valence	Ph2	38	-0.3633	0.2780	-0.0643	0.1895	Less than 0 (p=.022)
Activation	Ph2	38	-0.2682	0.3254	0.0026	0.1319	Not sig.
Valence	Ph3	38	-0.5602	0.4395	0.0867	0.1981	Greater than 0 ($p_{adj.}$=.005)
Activation	Ph3	38	-0.3871	0.3741	-0.0087	0.1805	Not sig.
AP/DD	All	38	-0.1383	0.2241	0.0345	0.1040	Greater than 0 ($p_{adj.}$=.020)
AD/DP	All	38	-0.2388	0.2295	-0.0422	0.1086	Less than 0 ($p_{adj.}$=.012)
AP/DD	Ph1	38	-0.2419	0.3339	0.0923	0.1324	Greater than 0 ($p_{adj.}$=.000)
AD/DP	Ph1	38	-0.3317	0.2257	-0.1062	0.1381	Less than 0 ($p_{adj.}$=.000)
AP/DD	Ph2	38	-0.3046	0.2633	-0.0433	0.1378	Less than 0 (p=.030)
AD/DP	Ph2	38	-0.2806	0.3950	0.0475	0.1853	Greater than 0 ($p_{adj.}$=.061)
AP/DD	Ph3	38	-0.4541	0.4310	0.0546	0.1888	Greater than 0 ($p_{adj.}$=.042)
AD/DP	Ph3	38	-0.4214	0.4279	-0.0679	0.1902	Less than 0 ($p_{adj.}$=.017)

First, we observe a positive dyad level mean value of valence in phase 1 (0.1407), which decreases in phase 2 (-0.0643), and increases again in phase 3 (0.0867). The mean values of activation change only marginally. To test whether these changes are statistically significant, paired samples t-tests are conducted. These are shown in Table 8. Note that, since multiple t-tests are performed, we again use the False Discovery Rate (FDR) (Benjamini & Hochberg, 1995) to control for type I errors. The respective adjusted significance values are found in the column “sig. (adj.)”.

Table 8

T-Tests for Valence and Activation between Negotiation Phases (Successful Negotiations)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
Valence (ph1 vs. ph2)	0.2050	0.2401	37	5.264	.000	.000
Valence (ph2 vs. ph3)	-0.1510	0.2310	37	-4.031	.000	.000
Valence (ph1 vs. ph3)	0.0540	0.2498	37	1.333	.191	.382
Activation (ph1 vs. ph2)	-0.0111	0.1646	37	-0.417	.679	.883
Activation (ph2 vs. ph3)	0.0113	0.2046	37	0.339	.736	.883
Activation (ph1 vs. ph3)	0.0001	0.1979	37	0.004	.997	.997

The results of the t-tests for the valence dimension indicate that affective behaviors are significantly less positive in phase 2 than in phase 1 ($p_{adj.}$=.000), with the mean difference being 0.2050. Put differently, affective behaviors in phase 1 are characterized by more positively valenced affect (i.e., pleasure) than affective behaviors in phase 2. Also, the mean values of valence differ significantly between phase 2 and phase 3 ($p_{adj.}$=.000), with the mean difference equaling -0.1510. Hence, affective behaviors in phase 2 are characterized by more negatively valenced affect (i.e., displeasure) than those in phase 3. The t-test comparing the mean values of valence in phase 1 and phase 3 is not statistically significant ($p_{adj.}$=.382), which indicates that negotiators express affect of similar positive valence at the beginning and end of successful negotiations. For the dimension of activation none of the tests is statistically significant, which indicates that activation does not change over the negotiation process.

With respect to the dimensions of AP/DD and AD/DP the descriptive statistics in Table 7 show that values on the AP/DD dimension decrease from phase 1 (0.0923) to phase 2 (-0.0433) and then increases again in phase 3 (0.0546). Values on the AD/DP dimension increase from phase 1 (-0.1062) to phase 2 (0.0475) and then decrease again in phase 3 (-0.0679). Table 9 shows the results of paired samples t-tests to investigate whether these differences are statistically significant.

Table 9

T-Tests for AP/DD and AD/DP between Negotiation Phases (Successful Negotiations)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
AP/DD (ph1 vs. ph2)	0.1356	0.1872	37	4.465	.000	.000
AP/DD (ph2 vs. ph3)	-0.0979	0.1982	37	-3.044	.004	.008
AP/DD (ph1 vs. ph3)	0.0377	0.2119	37	1.097	.280	.329
AD/DP (ph1 vs. ph2)	-0.1537	0.2233	37	-4.241	.000	.000
AD/DP (ph2 vs. ph3)	0.1154	0.2366	37	3.008	.005	.008
AD/DP (ph1 vs. ph3)	-0.0382	0.2380	37	-0.990	.329	.329

For the dimension of AP/DD the results indicate that phase 1 is characterized more by affective behaviors of activated pleasure than phase 2 ($p_{adj.}$=.000), with the mean difference being 0.1356. Put differently, affective behaviors of activated pleasure decrease significantly from phase 1 to phase 2, which means that affective behaviors of deactivated displeasure increase from phase 1 to phase 2. From phase 2 to phase 3 affective behaviors of activated pleasure increase again significantly ($p_{adj.}$=.008), with the mean difference equaling -0.0979. The results for the dimension of AD/DP show the opposite pattern. Here it is found that values on the AD/DP dimension increase significantly from phase 1 to phase 2 ($p_{adj.}$=.000) and then again decreases significantly from phase 2 to phase 3 ($p_{adj.}$=.008). The mean differences are -0.1537 and 0.1154, respectively. The mean values on the AD/DP dimension in all three negotiation phases additionally indicate that negotiators initially express affect of deactivated pleasure in phase 1, followed by more affective behaviors of activated displeasure in phase 2, which is followed by more affective behaviors of deactivated pleasure in phase 3. Also note that the values on neither the AP/DD nor the AD/DP dimension, just as on the dimensions of valence and activation before, differ significantly between phase 1 and phase 3, which might indicate that negotiators in successful negotiations return to their “affective baseline” upon, or right before, successful negotiation conclusion.

E.1.2. Dyad Level Results for Failed Negotiations

Before interpreting these first obtained results further we turn our attention to failed negotiations, which are summarized by the descriptive statistics shown in Table 10. Again, the column "T-test against 0" shows the results of t-tests, testing whether the mean is significantly greater or smaller than zero (i.e., the results of one sided t-tests).

Table 10

Descriptive Statistics: Data Overview (Failed Negotiations)

Affective dimension	Phase	N	Min.	Max.	Mean	Std. dev.	T-test against 0
Valence	All	19	-0.2598	0.0792	-0.0918	0.1124	Less than 0 (p=.000)
Activation	All	19	-0.1341	0.2793	0.0232	0.0974	Not sig.
Valence	Ph1	19	-0.2085	0.2902	0.0464	0.1607	Not sig.
Activation	Ph1	19	-0.2562	0.1239	-0.0636	0.1153	Less than 0 (p=.014)
Valence	Ph2	19	-0.3287	0.1210	-0.1168	0.1193	Less than 0 ($p_{adj.}$=.000)
Activation	Ph2	19	-0.2393	0.3354	0.0479	0.1723	Not sig.
Valence	Ph3	19	-0.5271	0.0870	-0.2051	0.1930	Less than 0 ($p_{adj.}$=.000)
Activation	Ph3	19	-0.2895	0.4809	0.0854	0.1976	Greater than 0 (p=.038)
AP/DD	All	19	-0.2513	0.1487	-0.0476	0.1061	Less than 0 ($p_{adj.}$=.047)
AD/DP	All	19	-0.0746	0.2477	0.0818	0.1044	Greater than 0 ($p_{adj.}$=.002)
AP/DD	Ph1	19	-0.3291	0.2767	-0.0130	0.1710	Not sig.
AD/DP	Ph1	19	-0.3273	0.0567	-0.0773	0.0997	Less than 0 (p=.002)
AP/DD	Ph2	19	-0.3169	0.1090	-0.0475	0.1235	Less than 0 ($p_{adj.}$=.056)
AD/DP	Ph2	19	-0.1621	0.3950	0.1168	0.1694	Greater than 0 ($p_{adj.}$=.004)
AP/DD	Ph3	19	-0.3716	0.3584	-0.0822	0.1885	Less than 0 ($p_{adj.}$=.055)
AD/DP	Ph3	19	-0.2283	0.4658	0.2058	0.2025	Greater than 0 ($p_{adj.}$=.000)

For valence we observe a positive mean value in phase 1 (0.0464), which decreases in phase 2 (-0.1168), and decreases further in phase 3 (-0.2051). Activation increases from phase 1 (-0.0636) to phase 2 (0.0479) and increases further in phase 3 (0.0854). To test whether these changes are statistically significant paired samples t-tests are conducted, which are shown in Table 11.

Table 11

T-Tests for Valence and Activation between Negotiation Phases (Failed Negotiations)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
Valence (ph1 vs. ph2)	0.1632	0.1705	18	4.172	.001	.003
Valence (ph2 vs. ph3)	0.0884	0.1988	18	1.937	.069	.083
Valence (ph1 vs. ph3)	0.2516	0.2228	18	4.922	.000	.000
Activation (ph1 vs. ph2)	-0.1114	0.2166	18	-2.242	.038	.057
Activation (ph2 vs. ph3)	-0.0375	0.2349	18	-0.696	.495	.495
Activation (ph1 vs. ph3)	-0.1489	0.2420	18	-2.682	.015	.030

The results of the t-tests show that values on the valence dimension decrease significantly from phase 1 to phase 2 ($p_{adj.}$=.003), as well as from phase 2 to phase 3 ($p_{adj.}$=.083). The latter decrease is, however, only weakly significant. The mean differences are 0.1632 and 0.0884, respectively. Thus, we observe that affective behaviors of displeasure increase significantly over time. The results for activation show a significant increase from phase 1 to phase 2 ($p_{adj.}$=.057), with a mean difference of -0.1114. This effect is only marginally significant based on the adjusted p-value. The increase of activation from phase 2 to phase 3 is not statistically significant ($p_{adj.}$=.495), the increase of activation from phase 1 to phase 3 is statistically significant ($p_{adj.}$=.030). Consequently, the activation of affective behaviors increases from the first to the second phase and seems to remain at a comparable level until the end of the negotiations, if negotiations fail.

With respect to the dimensions of AP/DD and AD/DP the descriptive statistics in Table 10 show that the values on the AP/DD dimension decrease from phase 1 (-0.0130) to phase 2 (-0.0475), as well as from phase 2 to phase 3 (-0.0822). The values on the AD/DP dimension increase over all three negotiations phases (from -0.0773, to 0.1168, to 0.2058). The corresponding paired samples t-tests are shown in Table 12.

Table 12

T-Tests for AP/DD and AD/DP between Negotiation Phases (Failed Negotiations)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
AP/DD (ph1 vs. ph2)	0.0345	0.2196	18	0.685	.502	.502
AP/DD (ph2 vs. ph3)	0.0348	0.1595	18	0.950	.355	.426
AP/DD (ph1 vs. ph3)	0.0693	0.2553	18	1.183	.252	.378
AD/DP (ph1 vs. ph2)	-0.1941	0.1672	18	-5.061	.000	.000
AD/DP (ph2 vs. ph3)	-0.0890	0.2634	18	-1.473	.158	.316
AD/DP (ph1 vs. ph3)	-0.2831	0.2088	18	-5.910	.000	.000

For the dimension of AP/DD the t-tests show no statistically significant differences between negotiation phases. For the dimension of AD/DP we observe a highly statistically significant increase of affective behaviors of activated displeasure from phase 1 to phase 2 ($p_{adj.}$=.000). No further significant increase from phase 2 to phase 3 is observed ($p_{adj.}$=.316). In phase 3 affective behaviors are characterized by more activated displeasure than in phase 1 ($p_{adj.}$=.000).

E.1.3. Summary and Visual Representations of the Dyad Level Results

The evolvement and change of affective behaviors over time (i.e., over the three consecutive negotiation phases) is further depicted in the Figures 13 through 16, via boxplots. Figure 13 shows the evolvement of affective behaviors in line with the dimension of valence, Figure 14 is based on the dimension of activation, and Figures 15 and 16 are indicative for the dimensions of AP/DD and AD/DP, respectively.

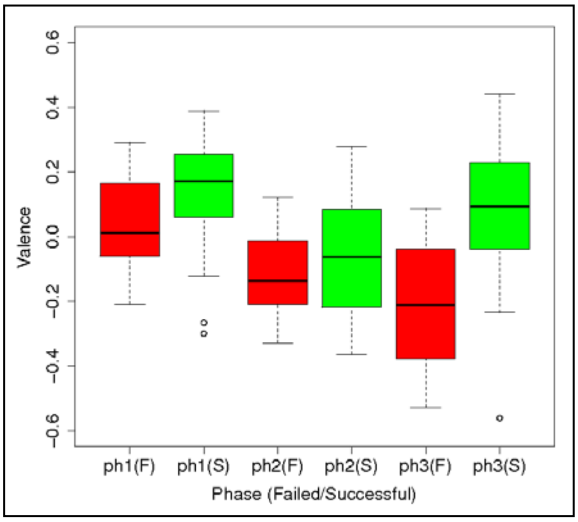

Figure 13. Boxplots for the dimension valence (successful and failed negotiations).

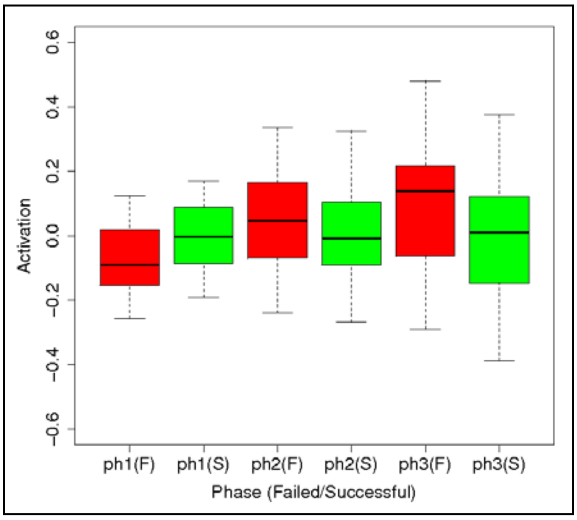

Figure 14. Boxplots for the dimension activation (successful and failed negotiations).

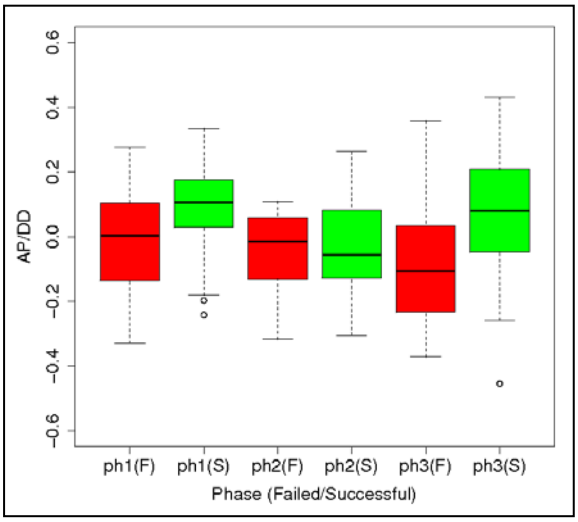

Figure 15. Boxplots for the dimension AP/DD (successful and failed negotiations).

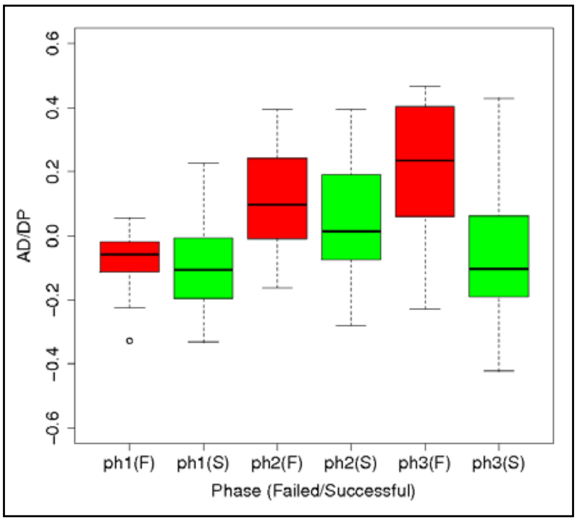

Figure 16. Boxplots for the dimension AD/DP (successful and failed negotiations).

In addition, for ease of interpretation and comprehensibility, Figures 17 and 18 show the procedural evolvement (or dynamics) of dyad level affective behaviors in the affective space (which was introduced in Figure 8 in chapter D.3.4.a.4.1), for successful and failed negotiations, respectively. The abscissa represents the dimension of valence, the ordinate represents the dimension of activation, and the two 45° rotated axes would reflect the dimensions of AP/DD and AD/DP. The three negotiation phases are indicated as "ph1", "ph2", and "ph3".

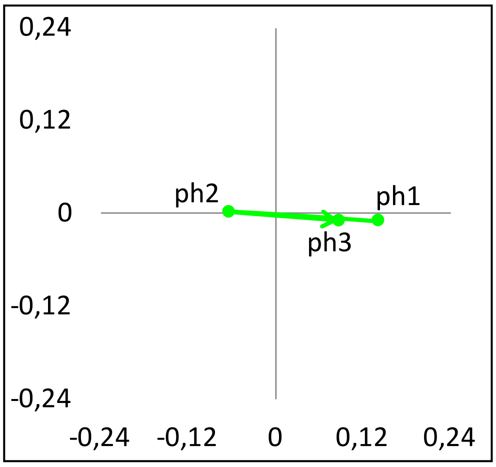

Figure 17. Affective behaviors in successful negotiations.

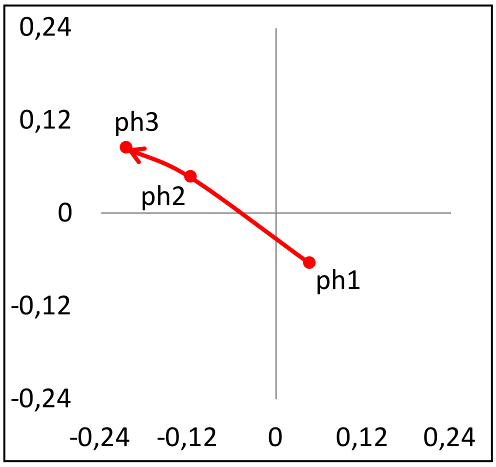

Figure 18. Affective behaviors in failed negotiations.

Overall, the depicted Figures 13-18 summarize the results discussed above and visualize the procedural dynamics of affective behaviors (i.e., their change over time) in terms of valence, activation, AP/DD, and AD/DP. Also note that the patterns of evolvement differ between successful and failed negotiations. For the dimension of valence the respective boxplots (Figure 13) show a u-shaped pattern for affective behaviors of pleasure for successful negotiations (i.e., successful negotiations are characterized by affective behaviors of pleasure in phase 1, affective behaviors of displeasure in phase 2, and affective behaviors of pleasure again in phase 3), whereas failed negotiations show a decreasing trend of affective behaviors of pleasure (i.e., failed negotiations are characterized by an increase of displeasure over time). The changes that characterize these patterns of evolvement are statistically significant (as shown before). For the dimension of activation the respective boxplots (Figure 14) indicate stability of expressed activation over time for successful negotiations, whereas failed negotiations are characterized by an increase of expressed activation over time. As shown before, these patterns of stability or change are confirmed by the provided t-tests. For the dimension of AP/DD the respective boxplots (Figure 15) show a u-shaped pattern of affective behaviors of activated pleasure for successful negotiations (i.e., successful negotiations are characterized by affective behaviors of activated pleasure in phase 1, affective behaviors of deactivated displeasure in phase 2, and affective behaviors of activated pleasure again in phase 3), whereas failed negotiations show a slightly increasing trend of affective behaviors of deactivated displeasure. The latter was, however, not found to be statistically significant. For the dimension of AD/DP (Figure 16) we observe an inverted u-shaped pattern of affective behaviors of activated displeasure for successful negotiations (i.e., successful negotiations are characterized by affective behaviors of deactivated pleasure in phase 1, a change to affective behaviors of activated displeasure in phase 2, and a final change to affective behaviors of deactivated pleasure again in phase 3), whereas failed negotiations are characterized by an increase of affective behaviors of activated displeasure over time. The changes that characterize these patterns of evolvement are statistically significant (as shown before). These results are visualized in their entirety in the Figures 17 and 18, which depict the evolvement of affective behaviors in and over the negotiation process in the affective space, spun by the affective dimensions of valence and activation.

To further test whether affective behaviors differ significantly between successful and failed negotiations in each of the three negotiation phases, Welch two sample t-tests are conducted. Table 13 shows the respective tests for the affective dimensions of valence and activation. The results indicate that successful and failed negotiations differ significantly on the valence dimension in phase 1 ($p_{adj.}$=.065) and in phase 3 ($p_{adj.}$=.000). Note that the first t-test shows a weakly significant difference, whereas the second shows a highly significant difference.

Table 13

T-Tests for Valence and Activation between Successful and Failed Negotiations

Tested variables	Mean difference	df	T-value	Sig.	Sig. (adj.)
Valence					
Ph1 (successful vs. failed)	0.0943	35.80	2.094	.043	.065
Ph2 (successful vs. failed)	0.0525	51.89	1.276	.208	.208
Ph3 (successful vs. failed)	0.2919	36.97	5.334	.000	.000
Activation					
Ph1 (successful vs. failed)	0.0550	33.38	1.747	.090	.137
Ph2 (successful vs. failed)	-0.0453	28.89	-1.007	.322	.322
Ph3 (successful vs. failed)	-0.0940	33.33	-1.742	.091	.137

The Welch two sample t-tests for the affective dimensions of AP/DD and AD/DP are shown in Table 14. Here the results indicate that successful and failed negotiations differ significantly on the dimension of AP/DD in phase 1 ($p_{adj.}$=.039) and in phase 3 ($p_{adj.}$=.039), as well as on the dimension of AD/DP in phase 3 ($p_{adj.}$=.000).

Table 14

T-Tests for AP/DD and AD/DP between Successful and Failed Negotiations

Tested variables	Mean difference	df	T-value	Sig.	Sig. (adj.)
AP/DD					
Ph1 (successful vs. failed)	0.1053	29.12	2.353	.026	.039
Ph2 (successful vs. failed)	0.0042	39.88	0.116	.908	.908
Ph3 (successful vs. failed)	0.1368	36.16	2.581	.014	.039
AD/DP					
Ph1 (successful vs. failed)	-0.0289	47.73	-0.903	.371	.371
Ph2 (successful vs. failed)	-0.0694	39.15	-1.412	.166	.249
Ph3 (successful vs. failed)	-0.2738	34.15	-4.908	.000	.000

E.1.4. Addressing Hypotheses H1a, H2, H4a, and H4b

The initial results provided above are restricted to the dyad level of analysis. Hence, they enable us to draw conclusions based on the dyad level average of affective behaviors only. Nevertheless, these results help us to gain a first insight into the dynamics of affective behaviors. In particular, we can assess whether affective behaviors change over time (i.e., from one negotiation phase to another) as well as in which direction this change occurs. Generally, the results show that affective behaviors do change over time (i.e., over the negotiation process) and thus indicate that different negotiation phases are characterized and shaped by affective behaviors of different affective quality. Also, we find that successful and failed negotiations are described by different patterns of affective behaviors over time. These results allow us to address some of the formulated hypotheses and one of the posed research questions.

The first hypothesis we address is H1a (The first negotiation phase is not predominantly characterized by negatively valenced affective behaviors, in successful and failed negotiations.). This hypothesis was formulated in line with phase model theories of negotiations, which generally posit that negotiators start by expressing emotions of positive valence, such as liking or interest (Morris & Keltner, 2000), or by expressing more neutral emotions (Broekens et al., 2010), in order to establish a positive relational climate and to move the negotiation forward. To address this hypothesis we examine the mean values for the affective dimensions in phase 1 for successful and failed negotiations, shown in the Tables 7 and 10. For successful negotiations we find a mean value of 0.1407 for valence in phase 1, which means that, on average, affective behaviors can be described as being characterized by pleasure. Also, we find a mean value of 0.0923 for AP/DD, and a mean value of -0.1062 for AD/DP. Hence, affective behaviors in phase 1 can also be described as being characterized by activated pleasure and deactivated pleasure. In sum, these results indicate that negotiation messages can be predominantly described by the right hand side of the affective space, which "captures" negotiation messages that are characterized by affective behaviors of positive valence varying in degree of activation. This is also depicted in Figure 19. Here, each data dot represents the dyad level average of affective behaviors for one negotiation in the first negotiation phase. The axes represent the valence and activation dimensions. Overall, for successful negotiations, we confirm H1a.

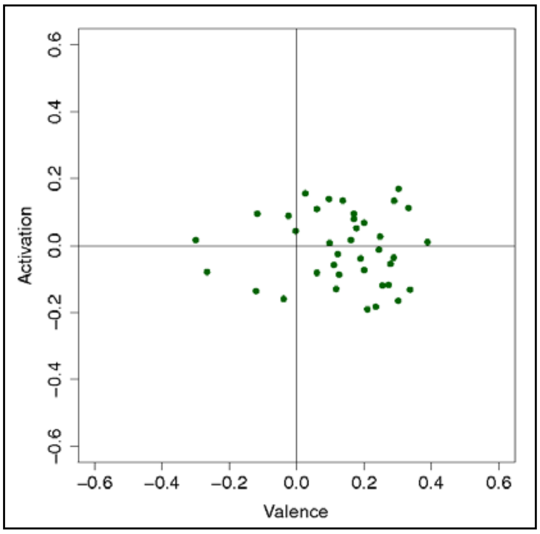

Figure 19. Affective behaviors in phase 1 of successful negotiations.

For failed negotiations we observe a mean value of 0.0464 for valence in phase 1, indicating that, on average, affective behaviors are characterized by more moderate levels of pleasure. For AP/DD and AD/DP we observe mean values of -0.0130 and -0.0773, respectively. These values indicate that negotiation messages can be predominantly described by the lower two thirds of the right hand side (i.e., the neutral and lower activated pleasure areas of the affective space) but also by the third quadrant (i.e., deactivated displeasure) of the affective space, at least to some extent. This is shown in Figure 20, which depicts the dyad level averages of affective behaviors for the first negotiation phase, in the affective space.

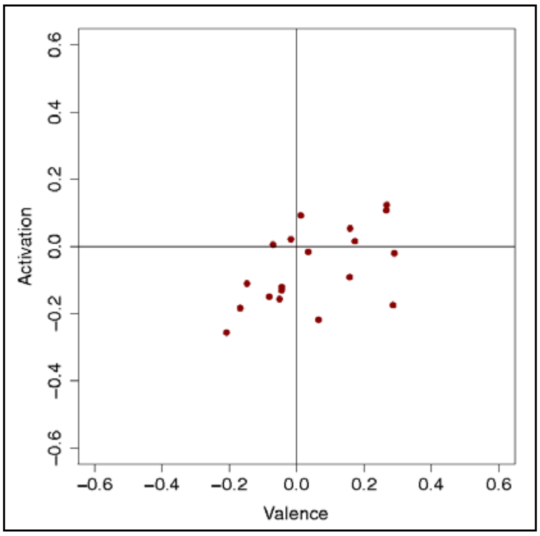

Figure 20. Affective behaviors in phase 1 of failed negotiations.

Consequently, and put very general, failed negotiations are characterized by less positive affective behaviors in phase 1 than successful negotiations, yet they can still be described as not being predominantly shaped by negatively valenced affective behaviors. Thus, the proposition of some authors that the outset of negotiations is defined by affective expressions of positive valence (Morris & Keltner, 2000) is confirmed for successful negotiations, while the proposition of other authors that the outset of negotiations is defined by rather neural affective expressions (Broekens et al., 2010) is mostly confirmed for failed negotiations. Overall we also confirm H1a for failed negotiations.

The next hypothesis we address is H2 (Affective behaviors become more negative from phase 1 to phase 2, in successful and failed negotiations.). This hypothesis was again formulated in line with phase model theories of negotiations, which generally posit that affective expressions are predominantly characterized by negatively valenced emotions in the second or central negotiation phase (Adair & Brett, 2005; Morris & Keltner, 2000; Putnam, 1990), mostly due to the competitive nature of this phase. To address this hypothesis, we first examine the mean values of the affective dimensions for the second negotiation phase found in the Tables 7 and 10. For successful negotiations we observe a mean value of -0.0643 for valence, a mean value of -0.0433 for AP/DD, and a mean value of 0.0475 for AD/DP, in phase 2. Overall, these values generally indicate that affective behaviors can be predominantly described as negatively valenced, that is, that negotiation messages can be predominantly described by the left hand side (i.e., the two displeasure quadrants) of the affective space. Figure 21 shows the dyad level averages of affective behaviors in the affective space. Here we see that the majority of dyad level averages falls on the left hand side of the affective space, as hypothesized, but also that the fourth quadrant is populated to some extent. This indicates that, in some negotiations, also affective behaviors of deactivated pleasure are used.

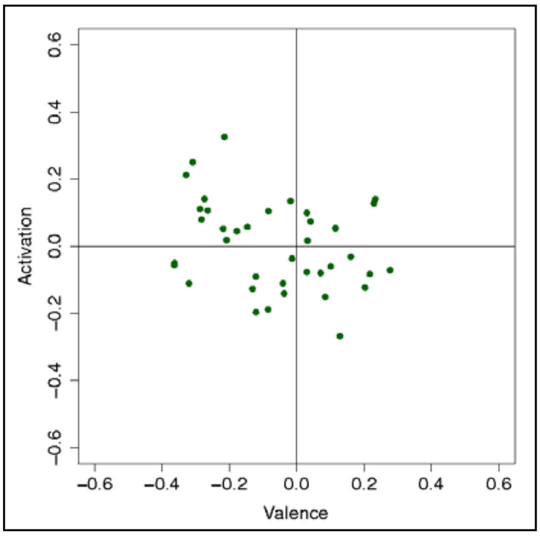

Figure 21. Affective behaviors in phase 2 of successful negotiations.

For failed negotiations we find a mean value of -0.1168 for valence in phase 2, which means that negotiation messages are predominantly characterized by negatively valenced affective behaviors. Further, for AP/DD we find a mean value of -0.0475, and for AD/DP we find a mean value of 0.1168, which additionally shows that negotiation messages can be predominantly described by the left hand side (i.e., the two displeasure quadrants) of the affective space. Figure 22 shows the dyad level averages of affective behaviors in the affective space, and visualizes the dominance of negatively valenced affective behaviors in this phase.

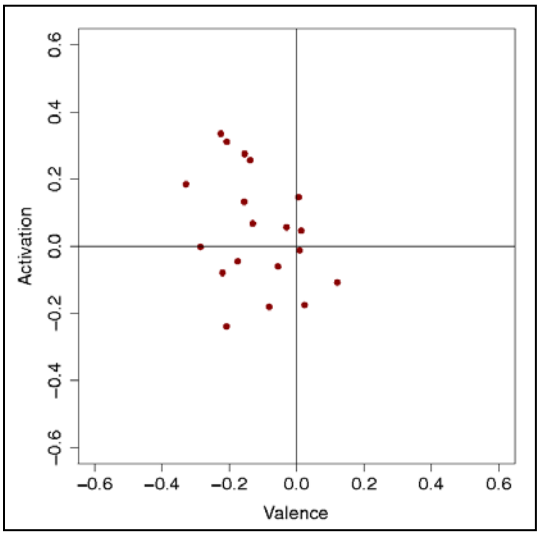

Figure 22. Affective behaviors in phase 2 of failed negotiations.

To address whether dyad level affective behaviors differ significantly between the first and the second negotiation phase, we investigate the results of the paired samples t-tests in the Tables 8 and 9 for successful negotiations, and in the Tables 11 and 12 for failed negotiations. We start by investigating the t-tests for successful negotiations. These show that pleasure significantly ($p_{adj.}$=.000) decreases from phase 1 to phase 2 (Table 8). In addition, the results in Table 9 show that activated pleasure significantly ($p_{adj.}$=.000) decreases, and that activated displeasure significantly ($p_{adj.}$=.000) increases, from phase 1 to phase 2. This change can also be investigated graphically when comparing Figures 19 and 21. These show a shift of dyad level averages of affective behaviors from the pleasure half to the displeasure half of the affective space. Next, for failed negotiations, we similarly observe a significant ($p_{adj.}$=.003) decrease of pleasure from phase 1 to phase 2, as shown by the results of the t-test in Table 11. Further, as found in Table 12, also activated displeasure significantly ($p_{adj.}$=.000) increases from phase 1 to phase 2. However, we observe no significant change on the AP/DD dimension. In addition, we also observe a weakly significant ($p_{adj.}$=.057) increase of activation. Taken together, these results thus indicate that dyad level affective behaviors increase in displeasure as well as activation, from phase 1 to phase 2. These changes can be inspected visually by comparing Figures 20 and 22. Here, we again (as for successful negotiations) observe a shift of dyad level affective behaviors from the right to the left half of the affective space. Additionally, we also observe an upwards shift, which reflects the increase in activation. Overall, we can confirm the formulated hypothesis H2 for successful and failed negotiations, that affective behaviors become more negative from the first to the second negotiation phase.

The next hypotheses to be addressed are H4a (Affective behaviors become more positive from phase 2 to phase 3, in successful negotiations.), and H4b (Affective behaviors become more negative from phase 2 to phase 3, in failed negotiations.). Phase model theories of negotiations address the proposition formulated in hypothesis H4a only marginally (Morris & Keltner, 2000), if addressed at all. Thus, this hypothesis is less strongly rooted in existing literature. Nevertheless, it is to be expected that affective behaviors are predominantly of positive nature in the final negotiation phase 3 if an agreement is reached. As for H4a, the proposition formulated in hypothesis H4b is only marginally addressed in literature (Taylor, 2002b). Nevertheless, it can be expected that negotiation phase 3 is predominantly shaped by negatively valenced affective behaviors if negotiations fail. To address hypothesis H4a (for successful negotiations) we first inspect the mean values shown in Table 7. Here we observe a mean value of 0.0867 for the valence dimension, a mean value of 0.0546 for AP/DD, and a mean value of -0.0679 for AD/DP, which indicates that negotiation messages can be predominantly described by the right hand side of the affective space (i.e., the two pleasure quadrants). This is also shown graphically in Figure 23.

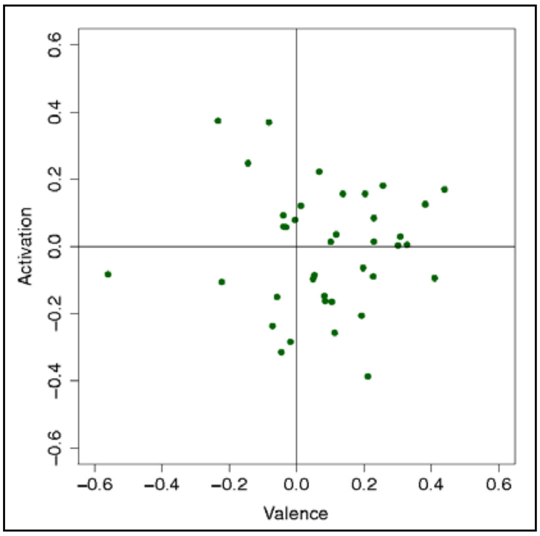

Figure 23. Affective behaviors in phase 3 of successful negotiations.

With respect to H4b (for failed negotiations), we first inspect the mean values shown in Table 10. Here we find a mean value of -0.2051 for valence, which initially indicates that negotiation messages are predominantly characterized by negatively valenced affective behaviors. Further, for AP/DD we observe a mean value of -0.0822, and for AD/DP we observe a mean value of 0.2058. In sum, these values indicate that negotiation messages can be predominantly described by the left hand side of the affective space (i.e., the two displeasure quadrants). Figure 24 visualizes the dyad level averages of affective behaviors in the affective space.

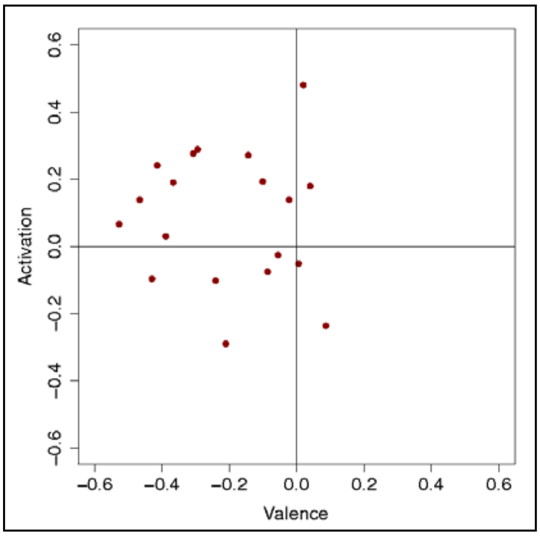

Figure 24. Affective behaviors in phase 3 of failed negotiations.

To address whether dyad level affective behaviors differ significantly between the second and the third negotiation phase, we investigate the results of the paired samples t-tests in the Tables 8 and 9 for successful negotiations, and in the Tables 11 and 12 for failed negotiations. We start by investigating the t-tests for successful negotiations. These show that pleasure significantly ($p_{adj.}$=.000) increases from phase 2 to phase 3 (Table 8). In addition, in Table 9 we find that activated pleasure significantly ($p_{adj.}$=.008) increases, and that activated displeasure significantly ($p_{adj.}$=.008) decreases, from phase 2 to phase 3. These changes can be explored graphically by comparing Figures 21 and 23. Here we observe a shift of dyad level averages of affective behaviors from the left to right half (i.e., from the displeasure to the pleasure half) of the affective space. Next, for failed negotiations, we find that valence significantly ($p_{adj.}$=.083) decreases (this effect is, however, only marginally significant, based on the adjusted p-value) from phase 2 to phase 3 (Table 11), which means that displeasure increases even further. For the other affective dimensions we do not observe a significant change. The increase of displeasure is further visualized by the Figures 22 and 24. Here we observe a further shift of dyad level affective behaviors to the outer left of the affective space. Overall, we can confirm the formulated hypothesis H4a for successful negotiations, that affective behaviors become more positive from the second to the third negotiation phase, as well as the formulated hypothesis H4b for failed negotiations, that affective behaviors become more negative from the second to the third negotiation phase.

E.1.5. Interim Discussion: Answering RQ1

Finally, we address the first research question RQ1 (Do affective behaviors show different patterns of evolvement over time in successful and failed negotiations?). To assess the differences of the procedural dynamics of dyad level affective behaviors between successful and failed negotiations, we additionally conducted repeated measures ANOVAs. The within-subjects[1] factors are the dyad level affective measures on the affective dimensions. These have three levels (i.e., the three negotiation phases). Put differently, the dyad level affective measures represent the dependent variables at three distinct time-points. The between-subjects[2] factor is negotiation success/failure (coded as 1/0). The complete results of these analyses are found in Appendix B. Note that, since RQ1 aims at exploring the differences of the procedural dynamics of affective behaviors between successful and failed negotiations (at the dyad level average), we are mainly interested in the interaction effect between the within-subjects factors and the between-subjects factor.

In the first repeated measures ANOVA (found in Appendix B.1) the procedural dynamics of dyad level affective behaviors with respect to the affective dimension of valence are assessed. The interaction effect between dyad level scores of valence over the three negotiation phases and negotiation success/failure is significant ($F(2, 110)=7.999$, $p=.001$). This indicates that the differences of affective behaviors of valence over time are different for successful and failed negotiations. To investigate these differences further, contrasts were performed. For these, a significant interaction for the comparison of dyad level affect between phase 2 and phase 3 was found ($F(1, 55)=14.865$, $r=.46$). Note that r (Person's correlation coefficient) is the effect size (Cohen, 1992) calculated as follows:

[1] Note that since the current measures to be analyzed are dyad level averages, the term within-subjects actually refers to "within-dyads". Thus, the dyad represents the "subject" in the present case.
[2] Again note that the between-subjects factor actually represents a "between-dyad" factor.

$$r = \sqrt{\frac{F(1, df_R)}{F(1, df_R) + df_R}}$$

The interaction graph, depicted in Figure 25, shows that the evolvement pattern of dyad level affective behaviors of valence from phase 1 to phase 2 is similar in successful and failed negotiations. However, it differs significantly between successful and failed negotiations from phase 2 to phase 3. Thus we observe that in both successful and failed negotiations, affective behaviors of pleasure decrease similarly from phase 1 to phase 2, whereas from phase 2 to phase 3 the evolvement patterns of valence differ significantly. Affective behaviors of pleasure increase in successful negotiations whereas they decrease further (i.e., affective behaviors of displeasure increase) in failed negotiations. This conclusion is further supported by an independent sample t-test, testing whether the difference of valence between phase 3 and phase 2 differs between successful and failed negotiations (t(41.33)=-4.055, p=.000).

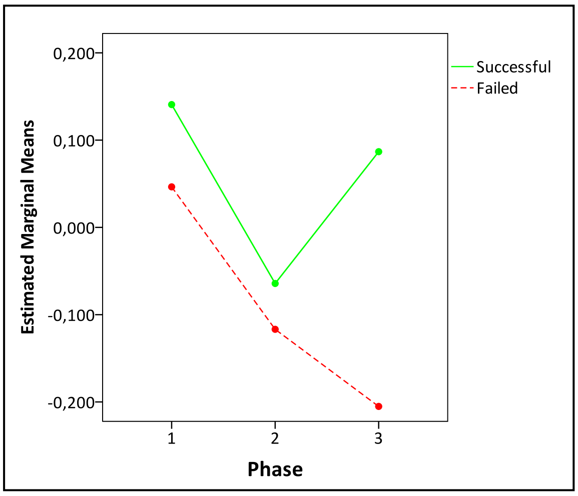

Figure 25. Interaction graph for the dimension valence (successful and failed negotiations).

In the second repeated measures ANOVA (found in Appendix B.2) the procedural dynamics of dyad level affective behaviors of activation are assessed. The interaction effect between dyad level scores of activation over the three negotiation phases and negotiation success/failure is significant at the .05 level (F(2, 110)=3.503, p=.034). This indicates that the differences of affective behaviors of activation over time are different for successful and failed negotiations. To investigate these differences further, contrasts were performed. For these, a significant interaction for the comparison of dyad level affect between phase 1 and phase 2 was found (F(1, 55)=3.792, r=.25). The interaction graph, depicted in Figure 26, visualizes the results. The significantly different patterns for the evolvement of activation from phase 1 to phase 2, between successful and failed negotiations, indicate that whereas activation increases from phase 1 to phase 2 in failed negotiations, it remains at a comparable level in successful negotiations. This conclusion is further supported (at a marginal level) by an independent sample t-test, testing whether the difference of activation between phase 2 and phase 1 differs between successful and failed negotiations (t(28.74)=1.778, p=.086).

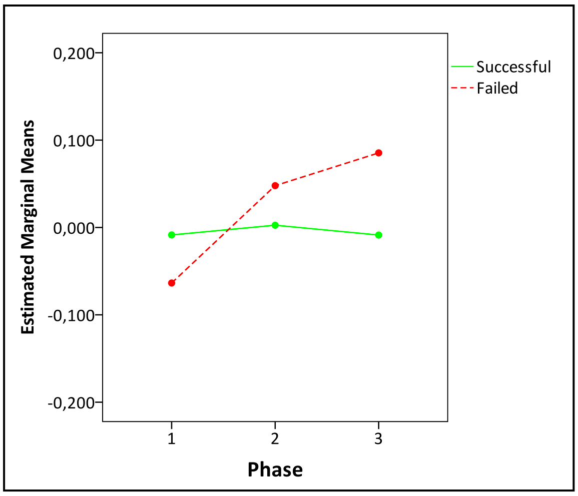

Figure 26. Interaction graph for the dimension activation (successful and failed negotiations).

In the third repeated measures ANOVA (found in Appendix B.3) the procedural dynamics of dyad level affective behaviors of AP/DD are assessed. The interaction effect between dyad level scores of AP/DD over the three negotiation phases and negotiation success/failure is significant at the .10 level (F(2, 110)=2.903, p=.059). This indicates that the differences of affective behaviors of AP/DD over time are different for successful and failed negotiations. Again contrasts were performed, to investigate these differences further. For these, a significant interaction for the comparison of dyad level affect between phase 1 and phase 2 (F(1, 55)=3.288, r=.24), as well as between phase 2 and phase 3 (F(1, 55)=6.412, r=.32), was found. The interaction graph (Figure 27) depicts these significant differences. Here we observe that although affective behaviors of activated pleasure decrease in successful and failed negotiations from phase 1 to phase 2, this decrease is significantly stronger in successful negotiations. The significantly different patterns between successful and failed negotiations from phase 2 to phase 3 show that affective behaviors of activated pleasure increase in successful negotiations, whereas these further decrease in failed negotiations. These conclusions are further supported by independent sample t-tests, testing whether the differences of AP/DD between phase 2 and phase 1 (t(31.43)=1.718, p=.096), as well as phase 3 and phase 2 (t(43.82)=-2.723, p=.009), differ between successful and failed negotiations.

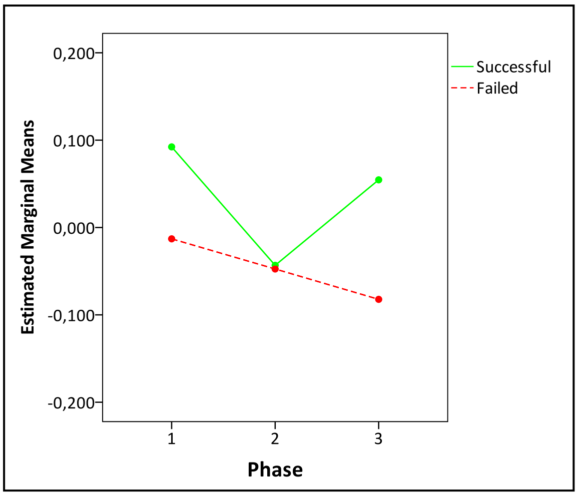

Figure 27. Interaction graph for the dimension AP/DD (successful and failed negotiations).

In the last repeated measures ANOVA (found in Appendix B.4) the procedural dynamics of dyad level affective behaviors of AD/DP are assessed. The interaction effect between dyad level scores of AD/DP over the three negotiation phases and negotiation success/failure is highly significant ($F(2, 110)=8.426$, $p=.000$). This indicates that the differences of affective behaviors of AD/DP over time are different for successful and failed negotiations. Again contrasts were performed, to investigate these differences further. For these, a significant interaction for the comparison of dyad level affect between phase 2 and phase 3 was found ($F(1, 55)=8.772$, $r=.37$). The interaction graph in Figure 28 visualizes these results. As can be seen, the patterns of evolvement on AD/DP do not differ significantly from phase 1 to phase 2 between successful and failed negotiations. The significantly different patterns of evolvement from phase 2 to phase 3 show that in successful negotiations affective behaviors of activated displeasure decrease (i.e., affective behaviors of deactivated pleasure increase), whereas in failed negotiations affective behaviors of activated displeasure increase. This conclusion is further supported by an independent sample t-test, testing whether the difference of AD/DP between phase 3 and phase 2 ($t(32.85)=2.856$, $p=.007$) differs between successful and failed negotiations.

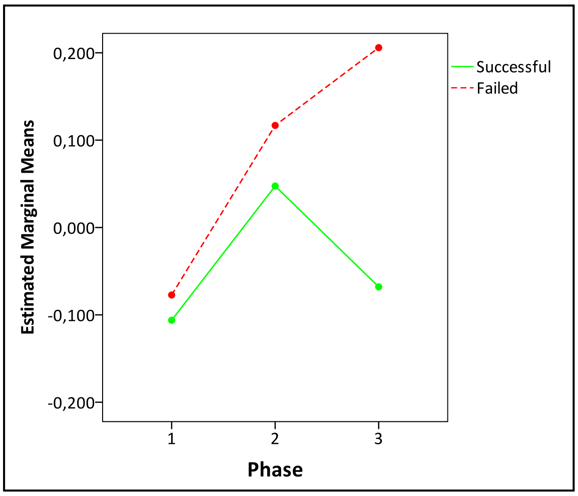

Figure 28. Interaction graph for the dimension AD/DP (successful and failed negotiations).

Overall, we find significant differences in the patterns of evolvement of dyad level affective behaviors between successful and failed negotiations. The changes of affective behaviors from negotiation phase 1 to phase 2 showed similar, yet slightly differing patterns. Here, one interesting finding is the significant difference of patterns for AP/DD. As shown in Table 12, AP/DD does not change significantly from phase 1 to phase 2 in failed negotiations, while it does change significantly in successful negotiations (Table 9). An inspection of the mean values (found in Table 10) as well as of the Figures 20 and 22 shows that negotiators already seem to use affective behaviors of less activated pleasure (or more deactivated displeasure) in phase 1 in failed negotiations. That this may not be the case in successful negotiations was shown by the t-tests in Table 14, which indicate a significant ($p_{adj.}$=.039) difference between successful and failed negotiations on the affective dimension of AP/DD in phase 1. This interpretation is further supported by the t-tests provided in the Tables 7 (for successful negotiations) and 10 (for failed negotiations). For failed negotiations we find that AP/DD is not significantly different from zero ($t(18)=-.331$, $p=.745$) in phase 1, whereas for successful negotiations a t-test indicates that AP/DD is significantly greater than zero ($p_{adj.}$=.000) in phase 1. Also note that the t-tests show no significant difference for AP/DD in phase 2 between successful and failed negotiations. Further, the significant ($p_{adj.}$=.065) t-test (yet only marginally significant based on the adjusted p-value), testing whether affective behaviors of valence in phase 1 differ between successful and failed negotiations, also indicates that negotiators in successful negotiations show more affective behaviors of pleasure than negotiators in failed negotiations. In this connection, a second interesting finding is the significant difference of patterns for activation. For this affective dimension we observed a significant increase from phase 1 to phase 2 (shown in Table 11) in failed negotiations. Such a change was, however, not observed for successful negotiations (Table 8). Put more generally, in successful negotiations we observe a shift of affective behaviors from the right to the left side of the affective space, whereas for failed negotiations we also observe an upward shift of affective behaviors in the affective space. These different patterns are also visualized in the Figures 17 and 18, as well as in the Figures 19 and 21, and Figures 20 and 22.

Consequently, these slight deviations on the affective dimensions of AP/DD, pleasure, and activation may be a property that could allow us to detect, early in the negotiation process, whether a negotiation is more likely to succeed or fail. To follow up on this issue, logistic regressions are estimated. In the first, we regress the dyad level averages of affective behaviors of AP/DD in phase 1 on a dichotomous variable indicating negotiation success (1) or failure (0). In the second and third, we regress the dyad level averages of affective behaviors of valence and activation in phase 1, on the same outcome variable. The results of these logistic regressions are shown in the Tables 15, 16, and 17.

Table 15

Logistic Regressions for AP/DD on Negotiation Success/Failure

Predictor	β	SE β	Wald χ^2	df	p	Odds ratio
Constant	0.491	0.304	2.610	1	.106	1.635
AP/DD (ph1)	4.782	2.040	5.496	1	.019	119.380
			χ^2	df	p	
Likelihood ratio test (omnibus test)			6.167	1	.013	

Hit rate = 73.7%; -2LL = 66.396, Cox & Snell R^2 = .103, Nagelkerke R^2 = .142

Table 16

Logistic Regressions for Valence on Negotiation Success/Failure

Predictor	β	SE β	Wald χ^2	df	p	Odds ratio
Constant	0.348	0.330	1.115	1	.291	1.417
Valence (ph1)	3.604	1.813	3.952	1	.047	36.753
			χ^2	df	p	
Likelihood ratio test (omnibus test)			4.231	1	.040	

Hit rate = 64,9%; -2LL = 68.331, Cox & Snell R^2 = .072, Nagelkerke R^2 = .099

Table 17

Logistic Regressions for Activation on Negotiation Success/Failure

Predictor	β	SE β	Wald χ^2	df	p	Odds ratio
Constant	0.864	0.314	7.575	1	.006	2.373
Activation (ph1)	4.727	2.713	3.037	1	.081	112.999
			χ^2	df	p	
Likelihood ratio test (omnibus test)			3.229	1	.072	

Hit rate = 68.4%; -2LL = 69.333, Cox & Snell R^2 = .055, Nagelkerke R^2 = .076

The results of the logistic regressions show that AP/DD and valence significantly predict negotiation success or failure, as does activation, however, only on a moderate level. These findings support the proposition of research on thin slices (Curhan & Pentland, 2007; Swaab et al., 2009; Volkema, Fleck, & Hofmeister, 2011), that early predictions of negotiation outcomes are possible. Consequently, we contribute to this domain of research by showing that early affective behaviors in text-based online negotiations may already contribute to future negotiation success or failure.

Next, we also address the changes of dyad level affective behaviors from negotiation phase 2 to phase 3, between successful and failed negotiations. Here our results clearly indicate that successful negotiations are characterized by a shift to affective behaviors of pleasure (i.e., to the right half of the affective space), whereas failed negotiations are characterized by affective behaviors of displeasure (i.e., the left half of the affective space). These findings are further supported by the one-sided t-tests provided in the Tables 7 (for successful negotiations) and 10 (for failed negotiations). For successful negotiations these indicate that valence is significantly smaller than zero in phase 2 ($p=.022$) and significantly greater than zero in phase 3 ($p_{adj.}=.005$). For failed negotiations the one sided t-tests indicate that valence is significantly smaller than zero in phase 2 ($p_{adj.}=.000$) as well as phase 3 ($p_{adj.}=.000$). These different patterns for successful and failed negotiations were to be expected. Also, the Welch two sample t-tests in the Tables 13 and 14 already indicated that affective behaviors in successful negotiations differ significantly from affective behaviors in failed negotiations in negotiation phase 3, on the dimensions of valence ($p_{adj.}=.000$), AP/DD ($p_{adj.}=.039$), and AD/DP ($p_{adj.}=.000$).

The overall procedural dynamics of affective behaviors, over all three negotiation phases, also reveal further interesting patterns (note that these were visualized in the Figures 18, 20, and 22 for successful negotiations, as well as in the Figures 19, 21, and 23 for failed negotiations). For successful negotiations we observe a “ping-pong” pattern moving from the right side, to left, and back to the right side, of the affective space. This is also nicely illustrated in Figure 17. For failed negotiations we observe a “curve ball” pattern, moving from the right side, to left, and slightly upwards, in the affective space. This pattern is also depicted in Figure 18. These graphs further demonstrate that one advantage of relying on the dimensional perspective of affect is the ease of visualizing, and hence interpreting, the results.

In addition, for successful negotiations we observed no statistically significant differences between dyad level affective behaviors in phase 1 and phase 3, for all affective dimensions (Tables 8 and 9). This might indicate that there is an affective “baseline climate” to which negotiators return before the negotiation is concluded successfully. Overall, we find that affective behaviors differ slightly in the first negotiation phase, do not differ in the second negotiation phase, and differ to a great extent in the third negotiation phase, between successful and failed negotiations. When a difference between successful and failed negotiations is observed in one of the three negotiation phases, it generally indicates that failed negotiations are characterized by more negative affective behaviors than successful negotiations. These phase-wise results are complemented by effects of procedural dynamics, which generally show that both successful and failed negotiations are characterized by similar shifts toward negative affective behaviors from phase 1 to phase 2. From phase 2 to phase 3 we generally observe that successful negotiations are characterized by shifts toward more positive affective behaviors, whereas failed negotiations are characterized by shifts toward more negative affective behaviors.

These results are in line with the EASI model (Van Kleef et al., 2010b) presented in chapter B.2.5.a. In successful and failed negotiations, the predominant use of positively valenced affective behaviors (i.e., the finding that affective behaviors are predominantly characterized by the right half, or the pleasure half, of the affective space) in phase 1, results in a “move against” or an increase of competition in phase 2. This is observed affect-wise by the increase of negatively valenced affective behaviors (i.e., the shift toward the left half, or the displeasure half, of the affective space) for successful as well as failed negotiations in phase 2. The reason for this effect may be that affective behaviors in phase 1 are interpreted in terms of their informational or strategic value (i.e., based on inferential processes), since this negotiation phase is of competitive nature. Put differently, expressions of positive emotions such as glad or pleased may be regarded as weakness, or as a sign that the opponent is doing very well and/or is a nice, understanding, and integrative person and may thus be ready to make some concessions (Lanzetta & Englis, 1989; Van Kleef et al., 2004a), which induces the focal negotiator to claim more value, behave more competitively, and use more negative emotional expressions such as nervous or displeased to support his or her claims (Van Kleef et al., 2010b).

The predominant use of negatively valenced affective behaviors (i.e., the finding that affective behaviors are predominantly characterized by the left half, or the displeasure half, of the affective space) in phase 2, results in a “move toward” or an increase of cooperation in phase 3, in successful negotiations. This is indicated by the increase of positively valenced affective behaviors (i.e., the shift toward the right half, or the pleasure half, of the affective space) in phase 3, in successful negotiations. According to the EASI model, the explanation for this effect is that expressions of negatively valenced affect in phase 2 are again interpreted in terms of their informational or strategic value (i.e., based on inferential processes), since phase 2 is of competitive nature. For failed negotiations we observe the opposite, that is, negatively valenced expressions of affect increase further, from phase 2 to phase 3. When interpreted in line with the EASI model, the divergence of these effects (from phase 2 to phase 3) between successful and failed negotiations, may indicate the use of different classes of negative emotions in the second negotiation phase in successful and failed negotiations. In particular, the EASI model proposes that emotions such as anger, frustration, or irritation can result in a move toward or away (i.e., in an increase of cooperation or inaction), whereas emotions such as sadness, distress, disappointment, or worry can result in a move away or against (i.e., in an increase of inaction or competition). Since we observe an amelioration of affective behaviors from phase 2 to phase 3 in successful negotiations, it may be concluded that affective behaviors are mainly governed by the first class of emotions in phase 2. In this respect, emotions such as anger or displeasure may, for example, be used to signal the importance of an issue to the opponent, which can have positive consequences if this signaling is decoded and understood in the intended way (Steinel et al., 2008; Van Dijk et al., 2008; Van Kleef & Côté, 2007). The observed deterioration of affective behaviors from phase 2 to phase 3 in failed negotiations may allow us to conclude that affective behaviors are governed by the second class of emotions instead of, or at least in addition to, the first class of emotions, in phase 2. Thus, in the case of failed negotiations the signaling functions of negative emotions may not have been understood correctly, or may have been considered as inappropriate by the observer (Steinel et al., 2008; Van Kleef & Côté, 2007). In addition, affective behaviors that can be described as anxious may be interpreted as weakness and can induce the opponent to increase pressure to claim more value by behaving more competitively or by expressing more negatively valenced emotions (Van Kleef & Van Lange, 2008).

Finally, the last phase in successful negotiations, which is of cooperative nature and characterized predominantly by affective behaviors of positive valence, results in a “move toward” (i.e., an increase of cooperation), as proposed by the EASI model. This “move toward” is argued to results from the automatic spread and reciprocation or synchronization of positive emotions in this cooperative phase and manifests itself in successful negotiation resolution. In failed negotiations, the last negotiation phase is still of competitive nature and is characterized by expressions of negatively valenced emotions, similar to those expressed in phase 2. Thus, in failed negotiations the third negotiation phase can be described as an intensified prolongation of the second negotiation phase. Consequently, we register a further “move away” or “move against”, which leads to negotiation breakdown.

To further investigate why these patterns of affective behaviors occur, we also need to turn our attention to the behavioral dynamics that characterize the negotiation process. In particular, we need to examine if the affective behaviors of the negotiators are in sync within negotiation phases (chapter E.3), as well as if and which affective behaviors impact or contribute to the change of affective behaviors over time, that is, over the negotiation process (chapter E.5). With respect to the synchrony of affective behaviors it can, for example, be investigated if positive emotions spread automatically in the last negotiation phase in successful negotiations, as proposed by the EASI model. A more detailed analysis of affective behaviors at the intra-personal (actor-effects) and inter-personal (partner-effects) levels, in line with the APIM, allows us to analyze which affective behaviors in one negotiation phase impact or contribute to affective behaviors in a later negotiation phase. Only after providing these results and gaining some initial insights about these additional effects, we can turn our attention to a full and more integrative explanation of the dynamics of affective behaviors.

E.2. Dyad Level Results: The Impact of Decision Support

Next, we address the question of whether decision support has an impact on the dynamics of affective behaviors in successful and failed negotiations, again at the dyad level average. Thus, the following section seeks to answer research question RQ4 (Do affective behaviors show different patterns of evolvement over time in negotiations with and without a DSS, in successful and failed negotiations?).

In order to answer RQ4, we start by conducting repeated measures ANOVAs, which are followed up by t-tests. Descriptive statistics of all investigated subgroups (successful negotiations as well as failed negotiations with and without decision support) are found in Appendix C. These again include the results of t-tests, testing whether means are significantly greater or smaller than zero (i.e., the results of one sided t-tests). The repeated measures ANOVAs are based on the dyad level affective measures on the affective dimensions as within-subjects[3] factors with three levels (i.e., negotiation phases). Put differently, the dyad level affective measures represent the dependent variables at three distinct time-points. DSS/noDSS (coded 1/0) represents the between-subjects[4] factor. DSS refers to negotiations that were provided with a decision support system, whereas noDSS refers to negotiations that were not provided with a decision support system. The complete results of the analyses are found in Appendix D. Note that, since RQ4 aims at exploring the differences of the procedural dynamics of affective behaviors between successful (and failed) negotiations with and without a DSS, we are mainly interested in the interaction effect between the within-subjects factors and the between-subjects factor.

E.2.1. Dyad Level Results for Successful Negotiations

We begin by investigating the impact of the provision of decision support on affective behaviors in successful negotiations. The repeated measures ANOVA for the affective dimension of valence shows that the interaction effect between dyad level scores of valence over the three negotiation phases and DSS/noDSS is not statistically significant ($F(2, 72)=1.144$, $p=.324$). Consequently, the differences of affective behaviors of valence over time do not differ between negotiations with and without decision support. The corresponding interaction graph is shown in Figure 29, which depicts that the evolvement patterns of affective behaviors in successful negotiations with and without a DSS are very similar.

[3] As already indicated in Chapter E.1, the term within-subjects actually refers to “within-dyads”. Thus, the dyad represents the “subject” in the present case.
[4] Again note that the between-subjects factor actually represents a “between-dyad” factor.

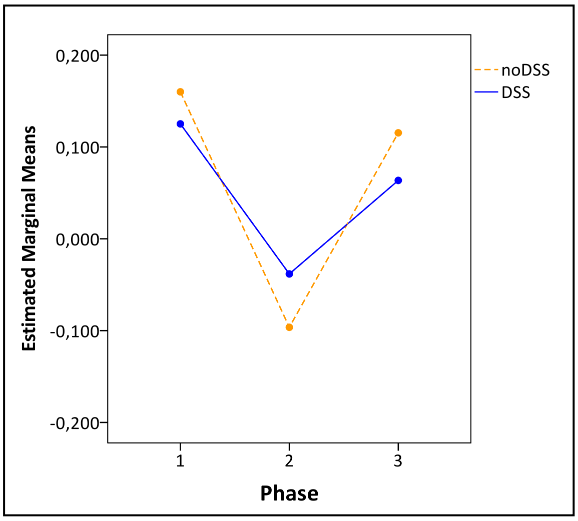

Figure 29. Interaction graph for the dimension valence (successful negotiations with and without DSS).

To follow up on these results, paired samples t-tests are conducted (Table 18). These show that dyad level affective behaviors of valence change significantly from phase 1 to phase 2 ($p_{adj.}$(DSS)=.012, $p_{adj.}$(noDSS)=.003) as well as from phase 2 to phase 3 ($p_{adj.}$(DSS)=.015, $p_{adj.}$(noDSS)=.012), in negotiations with and without decision support. Note that, since multiple t-tests are performed, we again (as in chapter E.1) use the False Discovery Rate (FDR) (Benjamini & Hochberg, 1995) to control for type I errors. Together with the descriptive statistics (Appendix C.1 and C.2), these results indicate that affective behaviors are characterized by positively valenced expressions of affect (e.g., pleasure) in phase 1 (mean(DSS)=0.1251, mean(noDSS)=0.1600), which become more negative in phase 2 (mean(DSS)=-0.0383, mean(noDSS)=-0.0964). In phase 3 affective behaviors become more positive again (mean(DSS)=0.0636), mean(noDSS)=0.1154) and can be characterized by positive valence (e.g., pleasure). These conclusions are further supported by the t-tests, testing whether the mean is significantly greater or smaller than zero (Tables C.1 and C.2 in Appendix C).

Table 18

T-Tests for Valence between Negotiation Phases (Successful Negotiations with and without DSS)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
DSS						
Valence (ph1 vs. ph2)	0.1634	0.2330	20	3.213	.004	.012
Valence (ph2 vs. ph3)	-0.1018	0.1642	20	-2.842	.010	.015
Valence (ph1 vs. ph3)	0.0615	0.2006	20	1.406	.175	.175
noDSS						
Valence (ph1 vs. ph2)	0.2564	0.2456	16	4.305	.001	.003
Valence (ph2 vs. ph3)	-0.2118	0.2873	16	-3.039	.008	.012
Valence (ph1 vs. ph3)	0.0447	0.3063	16	0.601	.556	.556

For the affective dimension of activation the repeated measures ANOVA shows that the interaction effect between dyad level scores of activation over the three negotiation phases and DSS/noDSS is statistically significant (F(2, 72)=3.283, p=.043). Consequently, the differences of affective behaviors of activation over time differ between successful negotiations with and without decision support. To investigate these differences further, contrasts were performed. For these, a significant interaction for the comparison of dyad level affect between phase 2 and phase 3 was found (F(1, 36)=4.491, r=.33). As in chapter E.1, “r” denotes the effect size. The interaction graph is shown in Figure 30 and depicts that, from phase 1 to phase 2, affective behaviors evolve similarly in negotiations with and without a DSS, although activation is slightly higher in negotiations without decision support. From phase 2 to phase 3, evolvement patterns of negotiations with and without a DSS differ. Here we find that in negotiations with decision support activation increases, whereas in negotiations without decision support activation decreases, from phase 2 to phase 3 in successful negotiations. Put differently, providing decision support results in an increase of activation from phase 2 to phase 3, whereas having no DSS available results in a decrease of activation over the same negotiation period.

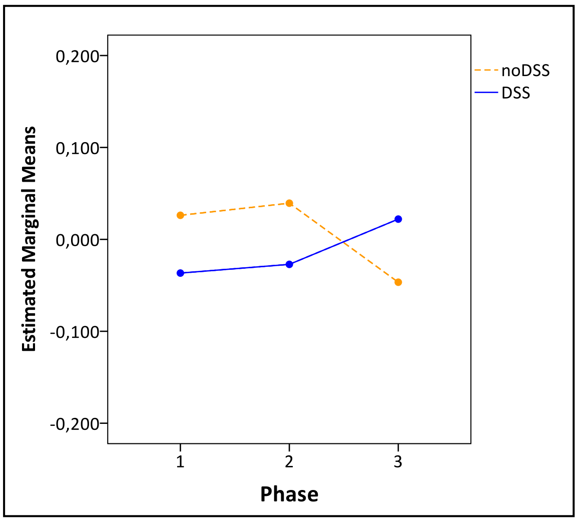

Figure 30. Interaction graph for the dimension activation (successful negotiations with and without DSS).

Further, paired samples t-tests were conducted (Table 19). These, indicate no significant changes of dyad level activation in successful negotiations with and without decision support. The descriptive statistics (Appendix C.1 and C.2) show a slight increase of activation from phase 2 (mean=-0.0272) to phase 3 (mean=0.0221) in negotiations with a DSS, and a slight decrease of activation from phase 2 (mean=0.0394) to phase 3 (mean=-0.0466) in negotiations without a DSS. The supplied t-tests in the Tables C.1 and C.2 (Appendix C.1 and C.2), moreover, indicate that these mean values do not differ significantly from zero. Nevertheless, the above conclusion is further supported by an independent sample t-test, testing whether the difference of activation between phase 3 and phase 2 differs between successful negotiations with and without a DSS (t(33.58)=-2.108, p=.043).

Table 19

T-Tests for Activation between Negotiation Phases (Successful Negotiations with and without DSS)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
DSS						
Activation (ph1 vs. ph2)	-0.0095	0.1663	20	-0.261	.797	.797
Activation (ph2 vs. ph3)	-0.0492	0.1910	20	-1.181	.251	.377
Activation (ph1 vs. ph3)	-0.0587	0.2044	20	-1.316	.203	.377
noDSS						
Activation (ph1 vs. ph2)	-0.0132	0.1677	16	-0.324	.750	.750
Activation (ph2 vs. ph3)	0.0860	0.2011	16	1.763	.097	.146
Activation (ph1 vs. ph3)	0.0728	0.1679	16	1.787	.093	.146

For the affective dimension of AP/DD the repeated measures ANOVA shows that the interaction effect between dyad level scores of AP/DD over the three negotiation phases and DSS/noDSS is not statistically significant ($F(2, 72)=0.887$, $p=.417$). This indicates that the differences of affective behaviors of AP/DD over time do not differ between negotiations with and without decision support. The interaction graph is shown in Figure 31 and depicts that affective expressions evolve very similar in negotiations with and without a DSS.

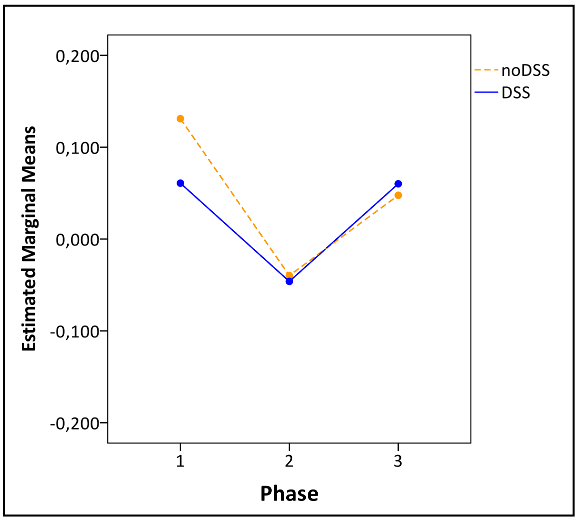

Figure 31. Interaction graph for the dimension AP/DD (successful negotiations with and without DSS).

The paired samples t-tests, provided in Table 20, further show that AP/DD changes significantly from phase 1 to phase 2 ($p_{adj.}=.009$) as well as from phase 2 to phase 3 ($p_{adj.}=.006$) in negotiations with decision support, whereas in negotiations without a DSS the change is significant from phase 1 to phase 2 ($p_{adj.}=.015$). In combination with the descriptive statistics (Appendix C.1 and C.2) these results indicate that in phase 1 (mean(DSS)=0.0609, mean(noDSS)=0.1311) negotiations are characterized by affective behaviors of activated pleasure (e.g., elated). In phase 2 (mean(DSS)=-0.0461, mean(noDSS)=-0.0398) these change toward deactivated displeasure (e.g., dull), and in phase 3 (mean(DSS)=0.0602, mean(noDSS)=0.0476) we observe a change back toward activated pleasure. Also note that the one sided t-tests in Appendix C (Tables C.1 and C.2) in particular confirm this interpretation (for affective behaviors in phase 2 and phase 3) for negotiations with a DSS.

Table 20

T-Tests for AP/DD between Negotiation Phases (Successful Negotiations with and without DSS)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
DSS						
AP/DD (ph1 vs. ph2)	0.1070	0.1579	20	3.105	.006	.009
AP/DD (ph2 vs. ph3)	-0.1063	0.1374	20	-3.546	.002	.006
AP/DD (ph1 vs. ph3)	0.0007	0.1652	20	0.019	.985	.985
noDSS						
AP/DD (ph1 vs. ph2)	0.1709	0.2178	16	3.235	.005	.015
AP/DD (ph2 vs. ph3)	-0.0874	0.2589	16	-1.392	.183	.198
AP/DD (ph1 vs. ph3)	0.0834	0.2564	16	1.342	.198	.198

For the fourth affective dimension AD/DP the repeated measures ANOVA shows that the interaction effect between dyad level scores of AD/DP over the three negotiation phases and DSS/noDSS is marginally statistically significant ($F(2, 72) = 2.716$, $p=.073$). This indicates that the differences of affective behaviors of AD/DP over time differ between negotiations with and without decision support. The performed contrasts further reveal a significant interaction for the comparison of dyad level affect between phase 2 and phase 3 ($F(1, 36)=5.552$, $r=.37$). These results, and the corresponding interaction graph found in Figure 32, indicate that affective behaviors evolve similarly from phase 1 to phase 2 on this affective dimension in negotiations with and without decision support. Additionally, from phase 2 to phase 3 deactivated pleasure (e.g., serene) increases more strongly in negotiations without a DSS than in negotiations with a DSS.

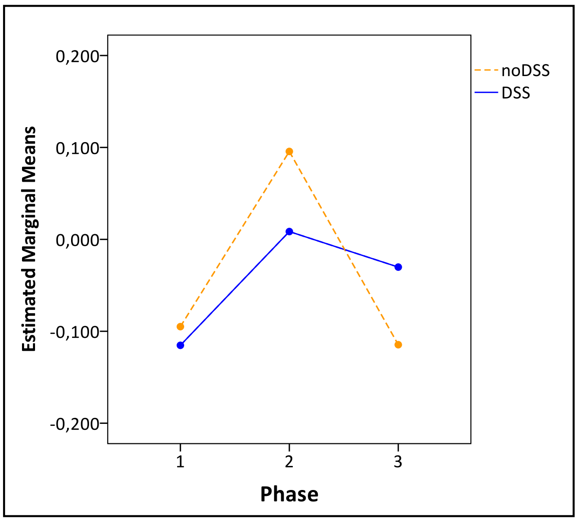

Figure 32. Interaction graph for the dimension AD/DP (successful negotiations with and without DSS).

The paired samples tests (Table 21) further show that AD/DP increases significantly (although only at a marginal level in negotiations with a DSS) from phase 1 to phase 2

($p_{adj.}$(DSS)=.084, $p_{adj.}$(noDSS)=.003) in negotiations with and without a DSS, whereas in negotiations without decision support AD/DP additionally decreases from phase 2 to phase 3 ($p_{adj.}$=.003). Together with the descriptive statistics (Appendix C.1 and C.2) these results indicate that negotiators show affective behaviors of deactivated pleasure (e.g., serene) in phase 1 (mean(DSS)=-0.1153, mean(noDSS)=-0.0949), which is also confirmed by the one sided t-tests in the Tables C.1 and C.2 (Appendix C). Affective behaviors in phase 2 (mean(DSS)=0.0085, mean(noDSS)=0.0957) are characterized more by activated displeasure (e.g., angry), and for phase 3 (mean(DSS)=-0.0302, mean(noDSS)=-0.1146) we observe a shift toward deactivated pleasure, however, this shift is more pronounced in negotiations without decision support. The one sided t-tests in Appendix C (Tables C.1 and C.2) in particular confirm this interpretation (for affective behaviors in phase 2 and 3) for negotiations without a DSS. In addition, the above conclusion, that successful negotiations with and without decision support differ regarding the evolvement of affective behaviors of AD/DP from phase 2 to phase 3, is further supported by an independent sample t-test, testing whether the difference of AD/DP between phase 3 and phase 2 differs between negotiations with and without a DSS (t(32.41)=-2.327, p=.026).

Table 21

T-Tests for AD/DP between Negotiation Phases (Successful Negotiations with and without DSS)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
DSS						
AD/DP (ph1 vs. ph2)	-0.1238	0.2389	20	-2.374	.028	.084
AD/DP (ph2 vs. ph3)	0.0387	0.2111	20	0.839	.411	.411
AD/DP (ph1 vs. ph3)	-0.0851	0.2339	20	-1.667	.111	.167
noDSS						
AD/DP (ph1 vs. ph2)	-0.1906	0.2035	16	-3.862	.001	.003
AD/DP (ph2 vs. ph3)	0.2103	0.2375	16	3.651	.002	.003
AD/DP (ph1 vs. ph3)	0.0197	0.2370	16	0.342	.737	.737

E.2.2. Summary and Visual Representations of the Dyad Level Results for Successful Negotiations

The evolvement and change of affective behaviors over the three negotiation phases is further visualized via boxplots provided below (Figures 33 through 36). Figure 33 depicts the evolvement of affective behaviors in line with the affective dimension of valence, Figure 34 is based on the dimension of activation, and Figures 35 and 36 are indicative for the dimensions of AP/DD and AD/DP, respectively.

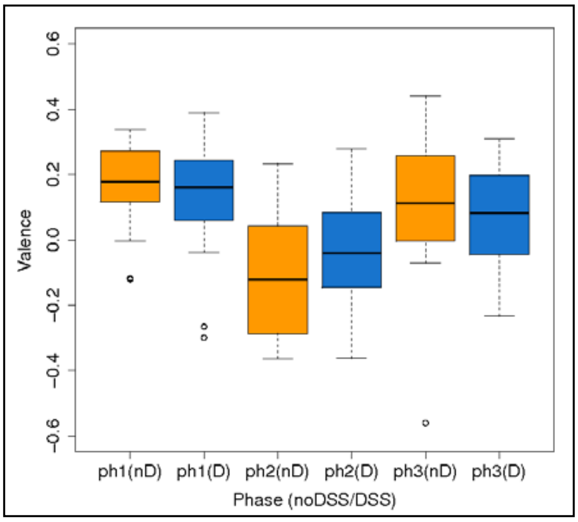

Figure 33. Boxplots for the dimension valence (successful negotiations with and without DSS).

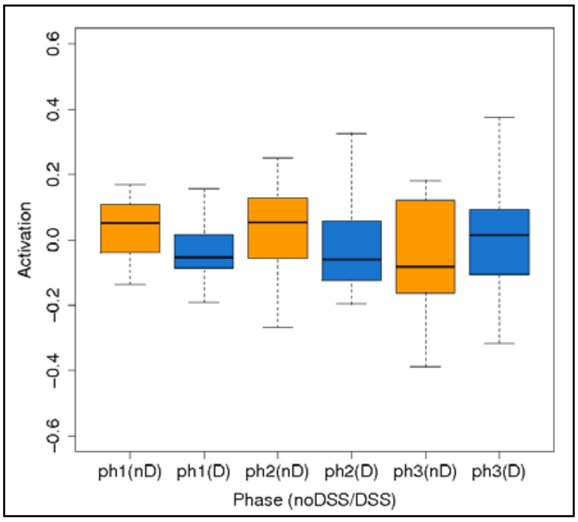

Figure 34. Boxplots for the dimension activation (successful negotiations with and without DSS).

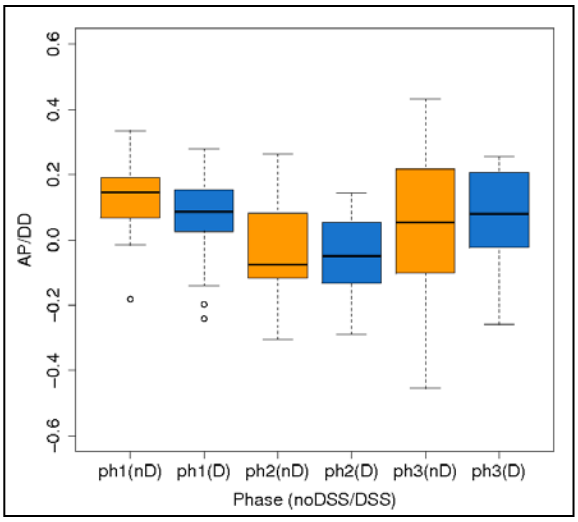

Figure 35. Boxplots for the dimension AP/DD (successful negotiations with and without DSS).

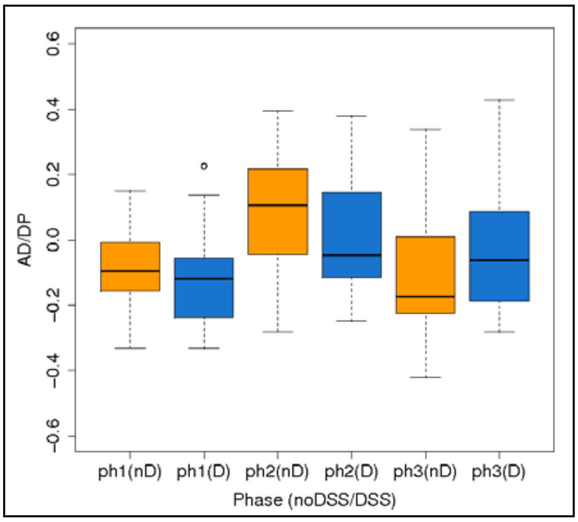

Figure 36. Boxplots for the dimension AD/DP (successful negotiations with and without DSS).

In sum, we observe that in successful negotiations decision support does not seem to impact dyad level affective behaviors of "pure" valence (e.g., pleasure or displeasure). Activation seems to be influenced marginally over the negotiation process. In particular, with respect to this affective dimension, the above results show that affective behaviors of activation increase from phase 2 to phase 3 when a DSS was provided, whereas activation decreases over these two phases when no DSS was provided. For the affective dimensions of AP/DD and AD/DP the paired samples t-tests (provided in Tables 20 and 21) indicated that in negotiations with as well as without a DSS, affective behaviors of activated pleasure (e.g., elated) decrease (or deactivated displeasure, e.g., dull, increase), and that affective behaviors of activated displeasure (e.g., angry) increase (or deactivated pleasure, e.g., serene, decrease) from phase 1 to phase 2. For the last two negotiation phases the t-tests indicated that in negotiations with decision support affective behaviors only change significantly on the dimension of AP/DD, whereas in negotiations without decision support affective behaviors only change significantly on the dimension of AD/DP, from phase 2 to phase 3. In more detail, we observe that affective behaviors of activated pleasure (e.g., elated) increase from phase 2 to phase 3 in negotiations with a DSS, whereas in negotiations without a DSS affective behaviors of deactivated pleasure (e.g., serene) increase from phase 2 to phase 3. These interpretations are further supported by the one sided t-tests supplied in the Tables C.1 and C.2 (Appendix C).

The obtained results are interesting and important for two reasons. First, we observe that in negotiations with and without decision support affective behaviors can generally be described by a shift from the left to the right side (i.e., from the displeasure half to the pleasure half) of the affective space, from phase 2 to phase 3. Interestingly, in negotiations with a DSS this shift seems to be an upward shift to the activated pleasure quadrant (i.e., toward affective behaviors of, e.g., elated), whereas in negotiations without a DSS this shift seems to be a downward shift to the deactivated pleasure quadrant (i.e., toward affective behaviors of, e.g., serene), in the affective space. These shifts are also visualized in the Figures 37 and 38, which depict the evolvement of affective behaviors in the affective space for successful negotiations with and without decision support, respectively.

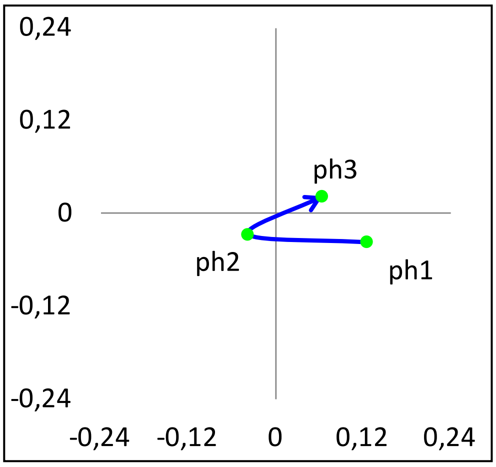

Figure 37. Affective behaviors with DSS (successful negotiations).

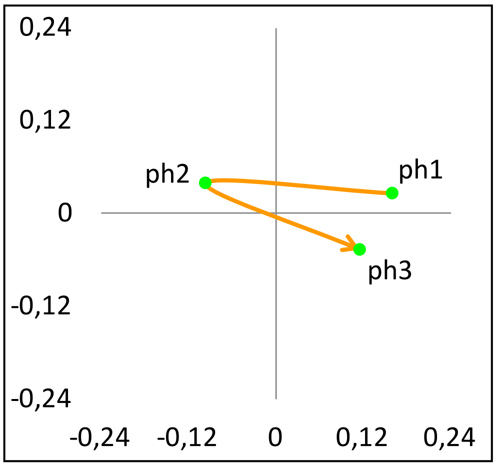

Figure 38. Affective behaviors without DSS (successful negotiations).

These figures thus show that negotiations with decision support (Figure 37) can be characterized by an increase of affective behaviors of, for example, elated, enthusiastic, or excited, whereas negotiations without decision support (Figure 38) can be characterized by an increase of affective behaviors of, for example, serene, content, or relaxed, from phase 2 to phase 3 in successful negotiations. Hence, if negotiators have a DSS available they show more activated affective behaviors of pleasure in the last negotiation phase, whereas if negotiators have no DSS available they show more deactivated affective behaviors of pleasure in the last negotiations phase. In very simply terms, we may conclude that having a DSS available or not makes the difference between expressing emotions of, for example, elation or enthusiasm and expressing emotions of, for example, sereneness or content, toward the end of a negotiation.

This slight, yet important, difference also conforms with other findings that a DSS can increase a negotiator's satisfaction with the negotiation process, outcome, or partner (Delaney et al., 1997; Lim, 2000; Rangaswamy & Shell, 1997). In addition, these results also indicate that decision support can be advantageous for the implementation of the negotiation outcome, or benefit future negotiations with the same opponent. One important reason why decision support impacts affective behaviors as observed, may be ascribed to the guidance, information, or feedback functions provided by DSSs (Baron, 1988; Bui, 1994). Thus, if negotiators have a DSS at their disposal they have better information or knowledge about what they will end up with after the negotiation is concluded, than if they would have no DSS available. Hence, although the outcomes in the last negotiation phase might be objectively very similar in negotiations with and without decision support, the subjective perceptions of these may be moderated by the information that is provided by the support system. Note that in the present case negotiators needed to negotiate about seven issues, which makes a joint and integrative comparison of all potential values on all those issues very difficult. Consequently, without decision support negotiators may need to rely on their best educated guesses when judging an offer, whereas with decision support negotiators have more exact information (in particular the multi-attribute utility value ranging from 0 to 1, as explained in chapter D.1.2) when judging an offer. Put differently, the advantage of a DSS is to know exactly what you will probably end up with, whereas without a DSS a negotiator only knows more or less if he or she gets a good deal or not. This additional information of knowing that the potential agreement "scores a favorable utility rating" thus induces negotiators to show affective expressions of elation or enthusiasm. Without this additional information, negotiators may subjectively perceive a potential deal as "good" for them, which induces them to use positive expressions of affect such as sereneness or content. These affective expressions (although positive) are, however, characterized by lower activation, because negotiators do not precisely know "how good" the potential outcome would actually and objectively be for them. Hence, without a DSS negotiators seem to be more "cautiously pleased" due to the somewhat remaining uncertainty about the value of the potential outcome or agreement.

Another reason for the observed effects of decision support may be its positive influence on cognitive effort and abilities (Blascovich, 1990, 1992; Feldman, 1995a). By reducing cognitive effort with respect to the judgment and comparison of offers, decision support enables negotiators to increase cognitive effort with respect to other activities, such as the expression of affect (Feldman, 1995a). Hence, in addition to be able to better, and more objectively, judge offers, negotiators have more cognitive resources available to use and interpret (or understand) affective expressions in a strategic or functional manner. One consequence, which we observe in the present case toward the end of negotiations, is the increase of activation when expressing emotions of positive valence. In this respect, affective expressions of, for example, elation or enthusiasm may be used to show one's high level of satisfaction to the opponent.

The second important finding is that an analysis of affective behaviors (just as affect in general) benefits from a integrated dimensional perspective of affect (Yik et al., 1999), in particular when the primary affective dimensions of valence and activation are assessed together with the secondary affective dimensions of AP/DD and AD/DP. Thus, the presently obtained results also conform with the call of Seo, Feldman Barrett, and Jin (2008) not to base the analysis of affect on either the circumplex model of affect (Russell, 1980) or the model of Negative Activation (NA) and Positive Activation (PA) (Watson & Tellegen, 1985) only, but rather to use an integrated dimensional model of affect. In other words, relying on an integrative dimensional model of affect increases the precision of our analysis and the respective results that are obtained.

E.2.3. Dyad Level Results for Failed Negotiations

Next we move on to the case of failed negotiations. Again, we begin by presenting the results of a repeated measures ANOVA for the affective dimension of valence, which shows that the interaction effect between dyad level scores of valence over the three negotiation phases and DSS/noDSS is not statistically significant ($F(2, 34)=0.141$, $p=.869$). Thus, the differences of affective behaviors of valence over time do not differ between negotiations with and without decision support. The corresponding interaction graph is shown in Figure 39, and shows that the patterns of evolvement of affective behaviors over the three negotiation phases do not differ between failed negotiations with and without decision support.

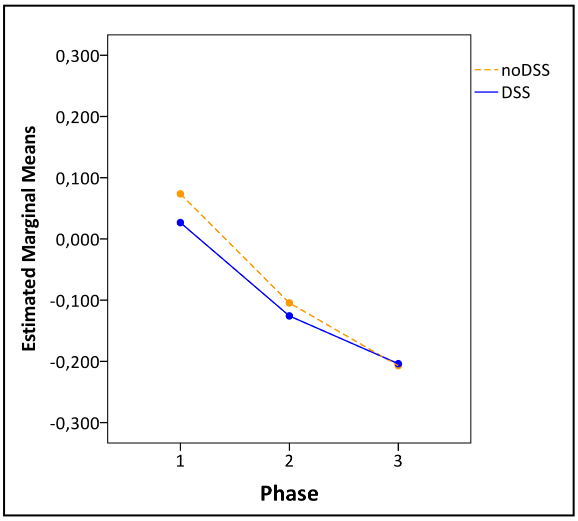

Figure 39. Interaction graph for the dimension valence (failed negotiations with and without DSS).

To follow up on these effects, paired samples t-tests are conducted (provided in Table 22), which show that in negotiations with as well as without decision support affective behaviors of pleasure significantly decrease (i.e., affective behaviors of displeasure significantly increase) from phase 1 to phase 2 ($p_{adj.}(DSS)=.026$, $p_{adj.}(noDSS)=.036$). Further, as indicated by the statistically significant t-tests comparing affective behaviors of valence in phase 1 and phase 3 ($p_{adj.}(DSS)=.006$, $p_{adj.}(noDSS)=.036$), dyad level affective behaviors are also characterized by more displeasure in phase 3 than in phase 1, in failed negotiations with and without a DSS. Together with the descriptive statistics (Appendix C.3 and C.4) as well as the t-tests, testing whether means are significantly greater or smaller than zero (Tables C.3 and C.4), these results indicate for phase 1 that affective behaviors are characterized by slightly positive expressions valence (mean(DSS)=0.0267, mean(noDSS)=0.0737). Further, in phase 2 (mean(DSS)=-0.1257, mean(noDSS)=-0.1045) affective behaviors are observed to become more negative and to be characterized by negative valence (e.g., displeasure), and in phase 3 (mean(DSS)=-0.2038, mean(noDSS)=-0.2070) we find that affective behaviors of displeasure increase further, which was, however, not found to be statistically significant.

Table 22

T-Tests for Valence between Negotiation Phases (Failed Negotiations with and without DSS)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
DSS						
Valence (ph1 vs. ph2)	0.1524	0.1771	10	2.854	.017	.026
Valence (ph2 vs. ph3)	0.0780	0.2314	10	1.118	.290	.290
Valence (ph1 vs. ph3)	0.2304	0.1857	10	4.116	.002	.006
noDSS						
Valence (ph1 vs. ph2)	0.1781	0.1718	7	2.932	.022	.036
Valence (ph2 vs. ph3)	0.1026	0.1573	7	1.844	.108	.108
Valence (ph1 vs. ph3)	0.2807	0.2770	7	2.866	.024	.036

For the affective dimension of activation the repeated measures ANOVA shows that the interaction effect between dyad level scores of activation over the three negotiation phases and DSS/noDSS is statistically significant ($F(2, 34)=3.330$, $p=.048$). Consequently, the differences of affective behaviors of activation over time differ between negotiations with and without decision support. The performed contrasts further show a significant interaction for the comparison of dyad level affect between phase 2 and phase 3 ($F(1, 17)=3.254$, $r=.40$). Figure 40 shows the corresponding interaction graph. The presented results indicate that in negotiations with and without decision support, activation increases similarly from phase 1 to phase 2. From phase 2 to phase 3, we observe that in negotiations with decision support activation increases, while it decreases slightly in negotiations without a DSS.

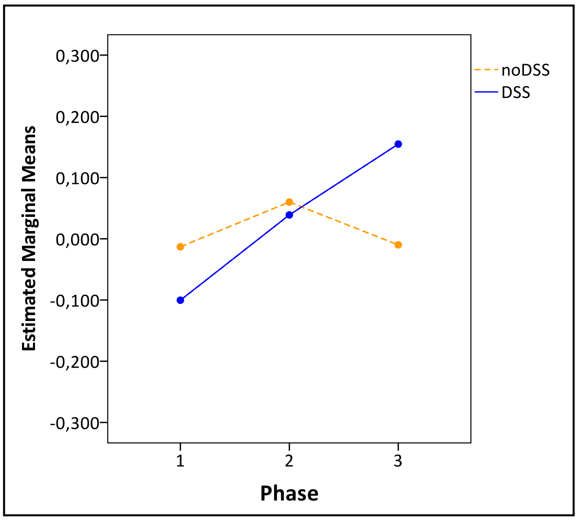

Figure 40. Interaction graph for the dimension activation (failed negotiations with and without DSS).

Together with the descriptive statistics (Appendix C.3 and C.4), the paired samples t-tests (Table 23) show that, in negotiations with decision support, the increase of activation from phase 1 (mean=-0.1003) to phase 2 (mean=0.0390) is marginally statistically significant ($p_{adj.}$=.063), as is the further increase of activation from phase 2 to phase 3 (mean=0.1547, $p_{adj.}$=.092). In negotiations without decision support, we find that the slight increase of activation from phase 1 (mean=-0.0130) to phase 2 (mean=0.0600), as well as the slight decrease of activation from phase 2 to phase 3 (mean=-0.0099), are both not statistically significant. Further, the t-tests in the Tables C.3 and C.4 (in Appendix C) show that activation does not differ significantly from zero in all phases of failed negotiations without a DSS, whereas for failed negotiations with decision support the t-tests indicate that activation is low in phase 1 (i.e., we find that activation is significantly smaller than zero with p=.005) but high in phase 3 (i.e., we find that activation is significantly greater than zero with p=.007).

Table 23

T-Tests for Activation between Negotiation Phases (Failed Negotiations with and without DSS)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
DSS						
Activation (ph1 vs. ph2)	-0.1393	0.1985	10	-2.328	.042	.063
Activation (ph2 vs. ph3)	-0.1157	0.2056	10	-1.866	.092	.092
Activation (ph1 vs. ph3)	-0.2550	0.1833	10	-4.613	.001	.003
noDSS						
Activation (ph1 vs. ph2)	-0.0731	0.2479	7	-0.834	.432	.662
Activation (ph2 vs. ph3)	0.0699	0.2423	7	0.816	.441	.662
Activation (ph1 vs. ph3)	-0.0031	0.2462	7	-0.036	.972	.972

Next, for the affective dimension of AP/DD the repeated measures ANOVA shows a marginally significant interaction effect between dyad level scores of AP/DD over the three negotiation phases and DSS/noDSS (F(2, 34)=2.714, p=.081). Accordingly, the differences of affective behaviors of AP/DD over time differ between negotiations with and without decision support. To follow up on this effect, contrasts were performed. These show a significant interaction for the comparison of dyad level affect between phase 2 and phase 3 ($F(1, 17)=5.012$, $r=.48$). The interaction graph is depicted in Figure 41. Here, the results depict that in negotiations without decision support affective behaviors of deactivated displeasure (e.g., dull, or unmotivated) increase over time, while in negotiations with a DSS almost no change on the dimension of AP/DD is observed.

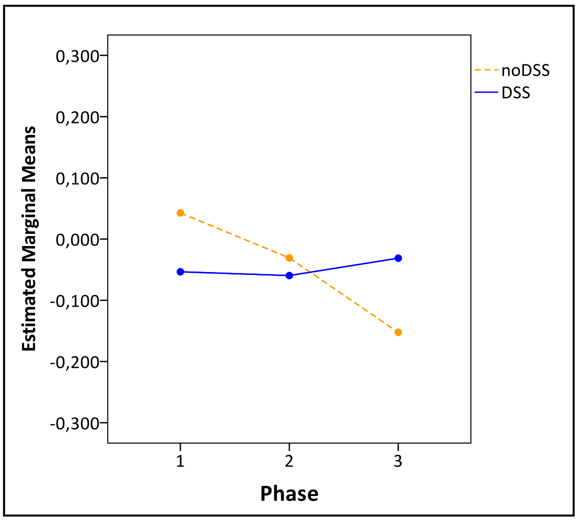

Figure 41. Interaction graph for the dimension AP/DD (failed negotiations with and without DSS).

In Table 24 the corresponding paired samples t-tests are provided. Overall, these indicate no significant changes of AP/DD between the negotiation phases. In negotiations without a DSS the adjusted significance value is, however, barely not significant at the .10 level, for the comparison of AP/DD between phase 2 and phase 3 ($p_{adj.}=.105$), as well as between phase 1 and phase 3 ($p_{adj.}=.105$). Together with the descriptive statistics (Appendix C.3 and C.4) the results overall indicate that in negotiations without decision support affective behaviors deteriorate from phase 1 (mean=0.0427) to phase 2 (mean=-0.0308), from affective behaviors of activated pleasure (e.g., elated) toward affective behaviors of deactivated displeasure (e.g., dull, unmotivated, or sluggish). In phase 3 (mean=-0.1524) affective behaviors deteriorate further toward deactivated displeasure. In negotiations with a DSS affective behaviors of AP/DD remain almost constant from phase 1 (mean=-0.0535), to phase 2 (mean=-0.0596), to phase 3 (mean=-0.0312). Note that this interpretation is also supported by the t-tests testing whether mean values are significantly greater or smaller than zero, in the Tables C.3 and C.4 (in Appendix C). Finally, the above conclusion is further supported by an independent sample t-test, testing whether the difference of AP/DD between phase 3 and phase 2 differs between failed negotiations with and without decision support ($t(13.25)=-2.165$, $p=.049$).

Table 24

T-Tests for AP/DD between Negotiation Phases (Failed Negotiations with and without DSS)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
DSS						
AP/DD (ph1 vs. ph2)	0.0061	0.2072	10	0.098	.924	.924
AP/DD (ph2 vs. ph3)	-0.0284	0.1313	10	-0.717	.490	.924
AP/DD (ph1 vs. ph3)	-0.0222	0.2205	10	-0.335	.745	.924
noDSS						
AP/DD (ph1 vs. ph2)	0.0735	0.2443	7	0.851	.423	.423
AP/DD (ph2 vs. ph3)	0.1216	0.1608	7	2.139	.070	.105
AP/DD (ph1 vs. ph3)	0.1951	0.2586	7	2.134	.070	.105

Finally, the repeated measures ANOVA for the affective dimension of AD/DP shows that the interaction effect between dyad level scores of AD/DP over the three negotiation phases and DSS/noDSS is not statistically significant ($F(2, 34)=1.117$, $p=.339$). Thus, the differences of affective behaviors of AD/DP over time do not differ significantly between negotiations with and without decision support. The interaction graph found in Figure 42 depicts that affective behaviors of activated displeasure (e.g., angry) increase over time in a similar manner for failed negotiations with and without decision support, while the final increase from phase 2 to phase 3 seems to be more pronounced in negotiations with a DSS.

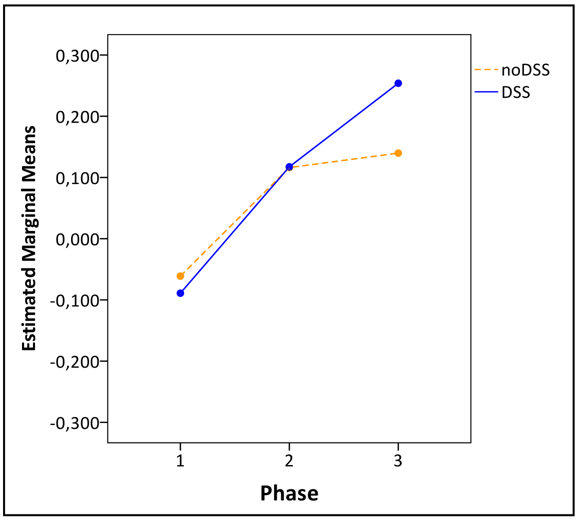

Figure 42. Interaction graph for the dimension AD/DP (failed negotiations with and without DSS).

The paired samples t-tests shown in Table 25 support these findings. Here we observe that in negotiations with decision support as well as without decision support affective behaviors of activated displeasure significantly ($p_{adj.}(DSS)=.003$, $p_{adj.}(noDSS)=.078$) increase from phase 1 to phase 2. Also, we observe a significant ($p_{adj.}=.000$) difference between affective behaviors in phase 1 and phase 3 on this dimension for negotiations with decision support. For negotiations without a DSS this difference between phase 1 and phase 3 is barely non-significant ($p_{adj.}=.105$). In combination with the descriptive statistics (Appendix C.3 and C.4) these results indicate that affective behaviors deteriorate from phase 1 (mean(DSS)=-0.0890, mean(noDSS)=-0.0611) to phase 2 (mean(DSS)=0.1173, mean(noDSS)=0.1162), from affective behaviors of deactivated pleasure (e.g., serene, content, or relaxed) toward affective behaviors of activated displeasure (e.g., angry, annoyed, or nervous), in negotiations with and without decision support. These conclusions are also supported by the t-tests, testing whether means are significantly greater or smaller than zero (Tables C.3 and C.4 in Appendix C). Finally, in phase 3 (mean(DSS)=0.2539, mean(noDSS)=0.1398) affective behaviors deteriorate further toward activated displeasure, in particular in negotiations with decision support.

Table 25

T-Tests for AD/DP between Negotiation Phases (Failed Negotiations with and without DSS)

Tested variables	Mean difference	Std. dev.	df	T-value	Sig.	Sig. (adj.)
DSS						
AD/DP (ph1 vs. ph2)	-0.2064	0.1669	10	-4.100	.002	.003
AD/DP (ph2 vs. ph3)	-0.1366	0.2804	10	-1.615	.137	.137
AD/DP (ph1 vs. ph3)	-0.3429	0.1396	10	-8.147	.000	.000
noDSS						
AD/DP (ph1 vs. ph2)	-0.1773	0.1775	7	-2.824	.026	.078
AD/DP (ph2 vs. ph3)	-0.0236	0.2401	7	-0.278	.789	.789
AD/DP (ph1 vs. ph3)	-0.2009	0.2663	7	-2.133	.070	.105

E.2.4. Summary and Visual Representations of the Dyad Level Results for Failed Negotiations

The evolvement and change of affective behaviors over the three negotiation phases is further visualized via boxplots provided below (Figures 43 through 46). Figure 43 depicts the evolvement of affective behaviors in line with the affective dimension of valence, Figure 44 is based on the dimension of activation, and Figures 45 and 46 are indicative for the dimensions of AP/DD and AD/DP, respectively.

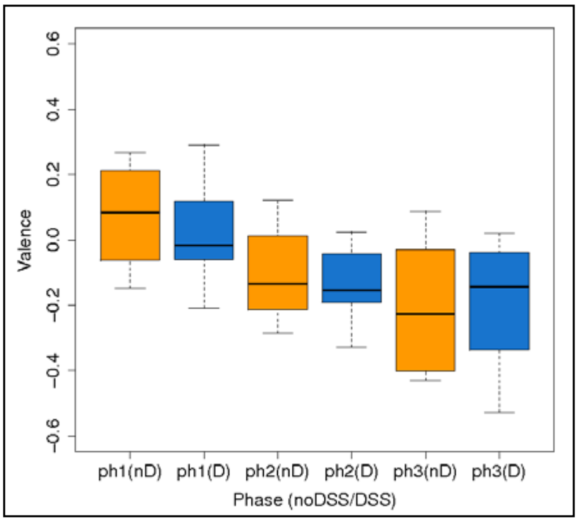

Figure 43. Boxplots for the dimension valence (failed negotiations with and without DSS).

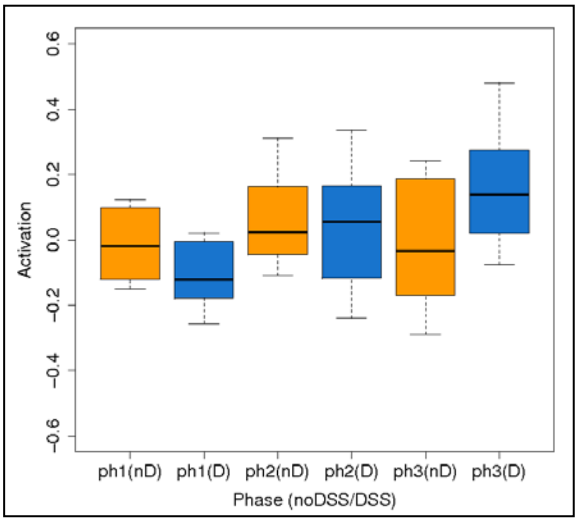

Figure 44. Boxplots for the dimension activation (failed negotiations with and without DSS).

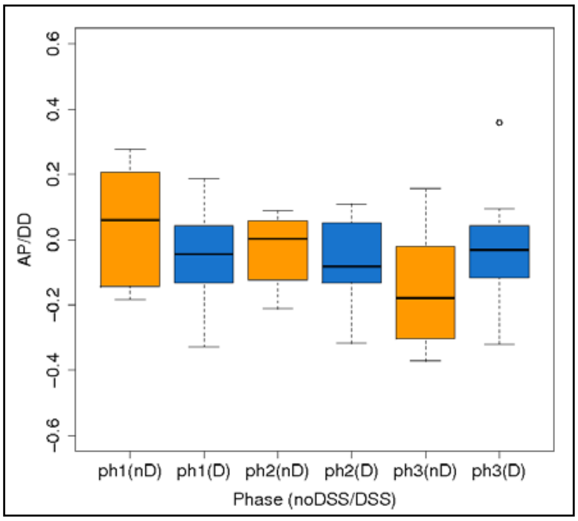

Figure 45. Boxplots for the dimension AP/DD (failed negotiations with and without DSS).

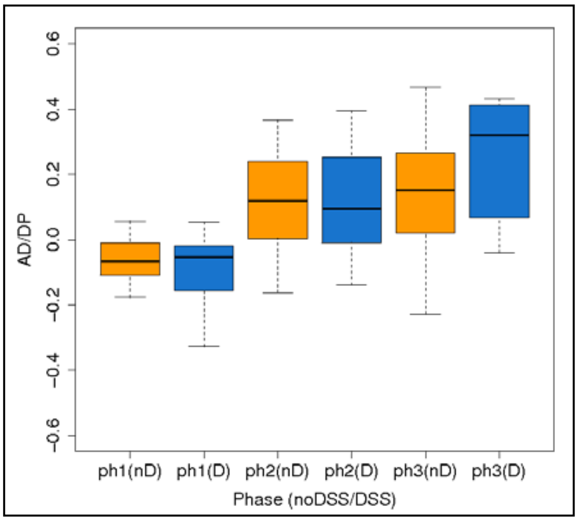

Figure 46. Boxplots for the dimension AD/DP (failed negotiations with and without DSS).

Overall, for failed negotiations, we find that decision support does not seem to impact dyad level affective behaviors on the valence dimension (e.g., affective behaviors of pleasure or displeasure). With respect to this dimension we thus observe that in negotiations with and without a DSS affective behaviors of displeasure increase over time (i.e., over the three negotiation phases). For the affective dimension of activation we find that negotiations without decision support are somewhat characterized by a stability of activation over time, whereas negotiations with decision support are characterized by an increase of activation over time. For the affective dimension of AP/DD we observe that, in negotiations with a DSS, affective behaviors do not seem to change regarding this affective dimension and remain at a moderately negative level over the three negotiation phases. Negotiations without a DSS are characterized by a slight decrease of affective behaviors on this dimension (i.e., we observe a shift toward, e.g., unmotivated, sluggish, or indifferent), in particular from phase 2 to phase 3. With respect to the dimensions of AD/DP we observe an increase of affective behaviors of activated displeasure (e.g., angry, annoyed, or nervous), over time. These interpretations are further supported by the one sided t-tests supplied in the Tables C.3 and C.4 (Appendix C).

These results generally show that affective behaviors in failed negotiations, with and without decision support, are characterized by a shift toward the left side (i.e., the outer side of the left half, or the displeasure half, of the affective space). With a DSS, we find that this shift is an upward shift toward the activated displeasure pole of the AD/DP dimension (e.g., toward angry, annoyed, or nervous). Without a DSS, however, this shift is a shift toward the displeasure pole of the valence dimension (e.g., toward unhappy, unfair, or displeased). These different patterns of evolvement are also visualized in the Figures 47 and 48, which depict the evolvement of affective behaviors in the affective space for failed negotiations with and without decision support, respectively.

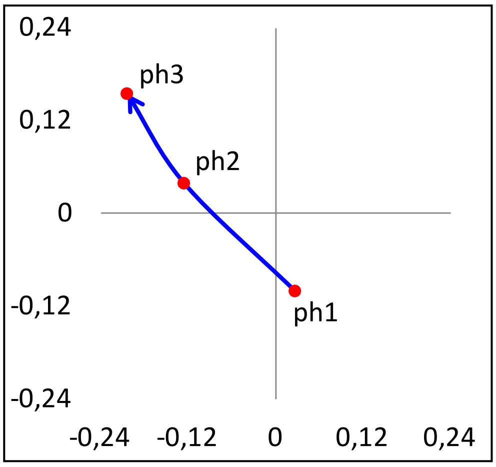

Figure 47. Affective behaviors with DSS (failed negotiations).

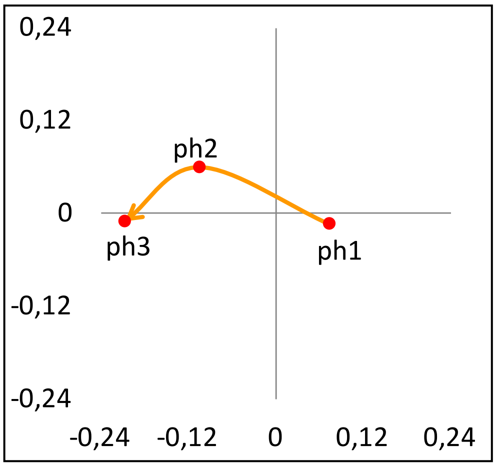

Figure 48. Affective behaviors without DSS (failed negotiations).

Consequently, Figure 47 depicts that failed negotiations with a DSS are characterized by a move of affective behaviors of, for example, serene, content, or relaxed (in phase 1) toward affective behaviors of, for example, angry, annoyed, or nervous over the subsequent negotiation phases (i.e., phase 2 and phase 3). Figure 48, shows that in failed negotiations without a DSS affective behaviors, however, develop toward, for example, unhappy, unfair, or displeased, over time (i.e., over the three negotiation phases).

Hence, interestingly, it seems that the provision of decision support has negative consequences with respect to affective behaviors, in particular in the final negotiation phase. Such potentially negative effects of decision support were also pointed out by some researchers (Bui, 1994; Pruitt & Rubin, 1986). Another argument is that such a negative influence of decision support may be related to its impact on cognitive processes and abilities (cf. Blascovich, 1990, 1992; Feldman, 1995a). With respect to this latter point it can be argued that, because a DSS frees up cognitive resources by providing guidance and information, negotiators may increase their cognitive awareness or attention regarding other activities, such as the strategic use of negatively valenced expressions of affect. Furthermore, the guidance, information, or feedback functions provided by DSSs (Baron, 1988; Bui, 1994) may play an important role with respect to this effect (similarly to what was observed for successful negotiations before). Hence, one important difference between failed negotiations with and without decision support again is the information upon which a negotiator can base his or her judgment about an offer, or the potential negotiation outcome. Without decision support this judgment will rather resemble an educated guess, whereas with decision support this judgment will be more objective or precise. Put differently, with decision support negotiators have better or more exact information and knowledge about what they might end up with. Hence, if negotiators are provided with a DSS, they have a better idea regarding the gap that separates them from achieving an agreement or about the disparity of the current offers. Consequently, this information advantage provided by decision support may indicate to a negotiator that his or her opponent is doing much better than him- or herself, which may induce the use of more activated expressions of negative valence (e.g., anger) to attack the opponent. Another explanation may be that, because of this knowledge, a negotiator may use affective expressions that can be described by activated displeasure (e.g., anger, or anxiousness), to signal to his or her opponent that the current offer is unjust or unfair. Hence, he or she shows more activation and activated displeasure in order to address and try to resolve this problem.

E.2.5. Interim Discussion: Answering RQ4

When putting the results for successful and failed negotiations into perspective, we find one important similarity with respect to the differences of affective behaviors between negotiations with and without a DSS. In particular, activation seems to play an important role, which can also be inspected visually in the Figures 37 and 38 (for successful negotiations) as well as the Figures 47 and 48 (for failed negotiations). In more detail, we find that with decision support activation increases from phase 2 to phase 3, whereas without decision support activation decreases from phase 2 to phase 3, in successful as well as failed negotiations. This decrease (without decision support) or increase (with decision support) is accompanied by a shift to the right half (i.e., the pleasure half) in the affective space in successful negotiations, and by a further shift to the left half (i.e., the displeasure half) in the affective space in failed negotiations. Put differently, when a DSS is available and an agreement is reached, negotiators are not only content or serene (as in successful negotiations without decision support), but enthusiastic or excited. When a DSS is available and no agreement is reached, negotiators are not only displeased or unhappy (as in failed negotiations without decision support), but angry or nervous. Hence, the guidance, information, or feedback functions provided by DSSs (Baron, 1988; Bui, 1994), as well as the impact of DSSs on cognitive processes and abilities (Blascovich, 1990, 1992; Feldman, 1995a), seem to have comparable effects in successful as well as failed negotiations. In both instances a DSS induces negotiators to act and react more active (with respect to either positively or negatively valenced expressions of affect).

One further explanation for this finding, which is also related to the feedback functions of decision support as well as the influence of decision support on cognitive processes, can be derived from the EASI model (Van Kleef et al., 2010b). In line with this model it may be assumed that decision support impacts inferential processes via the negotiators' epistemic motivation, that is, their motivation to invest time and effort to process information more thoroughly and use it more strategically or willfully (De Dreu & Carnevale, 2003). Since epistemic motivation is argued to depend also on "(process) accountability, […] and environmental noise" (Van Kleef et al., 2010b: 62), it can be argued that, because decision support increases the first and reduces the latter, DSSs increase an individual's epistemic motivation. This line of reasoning is supported by the argument put forth in the NSS and DSS literature, that decision support increases a negotiator's ownership of cognitive resources (Balzer et al., 1989; Silver, 1988; Singh & Ginzberg, 1996). As a result, negotiators are able to rationalize some aspects of the negotiation and communication process (Lim & Benbasat, 1992-93), which can increase the cognitive effort with respect to these aspects, and ultimately decision making and communication efforts and quality. Hence, it can be argued that the provision of a DSS may increase a negotiator's epistemic motivation. In general, research that can be aligned with the EASI model highlights that an increase in epistemic motivation results in an increase of effort (Van Kleef et al., 2010b), in cooperative (Van Kleef, Anastasopoulou, & Nijstad, 2010a; Van Kleef, Homan, Beersma, Van Knippenberg, Van Knippenberg, & Damen, 2009) as well as competitive (Van Kleef et al., 2004a, 2004b) contexts, which can be translated as an increase in (affective expressions of) activation in the present case. Hence, the observed differences of affective behaviors between negotiations with and without decision support in successful and failed negotiations (depicted in the Figures 37 and 38 as well as 47 and 48) may be rooted in the reduction of cognitive effort and the provision of additional information by the DSS, which then enables a negotiator to increase his or her epistemic motivation or activation.

In order to gain a better understanding of these effects, we also need to turn our attention to the remaining effects that contribute to and explain the dynamics of affective behaviors. Doing so enables us to investigate, for example, whether the provision of decision support (and the related increase of epistemic motivation) mitigates the synchronization or reciprocation of affective behaviors in favor of more complementary or structural sequences. Additionally, we wish to examine whether and how the provision of a DSS impacts intra-personal (actor effects) and inter-personal (partner effects) patterns of influence of affective behaviors over time.

E.3. Inter-Personal Level Results within Negotiation Phases: Successful and Failed Negotiations

Next, we turn our attention to the synchronization of affective behaviors within negotiation phases. Consequently, we address inter-personal effects of affective behaviors within each of the three negotiation phases. Thus, the following sections seek to answer RQ2 (Does the inter-personal synchrony of affective behaviors within negotiation phases differ between successful and failed negotiations?), and address the related hypotheses. In particular, we assess if the negotiators' affective behaviors, measured by the affective dimensions of valence, activation, AP/DD, and AD/DP, are correlated within each of the three negotiation phases. Since the negotiators are treated as indistinguishable in the present case (as explained in chapter D.5), traditional Pearson correlations are not suitable, as the assignment of the negotiators' measures to negotiator 1 or negotiator 2 is arbitrary in each negotiation dyad (Kashy & Kenny, 2000). Thus, we use the Intraclass Correlation Coefficient (ICC) (Kenny, 1995; Kenny et al., 2006) to investigate the potential synchrony of affective behaviors within negotiation phases. For dyadic data, as in the present case, the interpretation of the ICC is equal to the interpretation of a traditional Pearson correlation. Hence the ICC can range from -1 to 1. For dyadic data the ICC is calculated as follows:

$$\mathrm{ICC} = \frac{\mathrm{MS_B} - \mathrm{MS_W}}{\mathrm{MS_B} + \mathrm{MS_W}}$$

$\mathrm{MS_B}$ and $\mathrm{MS_W}$ denote the mean squares between and within groups (i.e., negotiation dyads), respectively. For more information regarding the calculation of the ICC the interested reader is referred to Kenny and Judd (1986), Kenny, Kashy, and Bolger (1998), or Lahey, Downey, and Saal (1983).

E.3.1. Analysis of the Synchrony of Affective Behaviors within Negotiation Phases

The analysis of the potential synchrony of affective behaviors within negotiation phases is a first important step for the analysis of the behavioral dynamics of affect (as outlined in the research framework in chapter D.2). Consequently, the examination of the synchronization of affective behaviors provides insights with respect to within-phase inter-personal effects. We begin by investigating intraclass correlations for successful and failed negotiations for the affective dimensions of valence and activation. These are shown in Table 26. In particular, a statistically significant and positive coefficient would indicate that the negotiators' affective behaviors are in sync, which can also be an indication for the reciprocation of affective behaviors. A statistically significant and negative coefficient would indicate that the negotiators' affective behaviors are not in sync, which can also be an indication for the mismatching of affective behaviors.

Table 26

ICCs for Valence and Activation (Successful and Failed negotiations)

	Successful negotiations		Failed negotiations	
	ICC	Sig.	ICC	Sig.
Phase 1				
Valence	.316	.032	.069	.765
Activation	-.125	.437	-.205	.359
Phase 2				
Valence	.319	.030	-.064	.783
Activation	.267	.078	.199	.371
Phase 3				
Valence	.368	.009	.122	.593
Activation	.370	.009	.165	.467

First, for successful negotiations, we find statistically significant ICCs for affective behaviors of valence in phase 1 (ICC=.316, p=.032), phase 2 (ICC=.319, p=.030), as well as phase 3 (ICC=.368, p=.009). Hence, the negotiators' affective behaviors of valence are in sync in all three negotiation phases. Further, affective behaviors of activation are found to be in sync in phase 2 (ICC=.267, p=.078) and phase 3 (ICC=.370, p=.009) in successful negotiations. For failed negotiations, we observe no statistically significant ICCs for the dimensions of valence and activation, in all three negotiation phases. This indicates that, in failed negotiations, neither the negotiators' affective behaviors of valence nor of activation are in sync. Next, the intraclass correlations for the affective dimensions of AP/DD and AD/DP are investigated (shown in Table 27).

Table 27

ICCs for AP/DD and AD/DP (Successful and Failed negotiations)

	Successful negotiations		Failed negotiations	
	ICC	Sig.	ICC	Sig.
Phase 1				
AP/DD	.080	.623	-.009	.970
AD/DP	.215	.168	-.083	.720
Phase 2				
AP/DD	.161	.311	.177	.432
AD/DP	.389	.005	.065	.778
Phase 3				
AP/DD	.547	.000	.165	.466
AD/DP	.232	.133	.130	.568

For successful negotiations we observe that the negotiators' affective behaviors of AP/DD are in sync in phase 3 (ICC=.547, p=.000), and that affective behaviors of AD/DP are in sync in phase 2 (ICC=.389, p=.005). For failed negotiations, the ICCs and their significance values indicate that the negotiators' affective behaviors of AP/DD as well as of AD/DP are not in sync in all of the three negotiation phases.

E.3.2. Addressing Hypotheses H1b, H3, H5a, H5b

Based on these results we can address the related hypotheses. The first hypothesis to be addressed is H1b (The affective behaviors of the negotiators are not in sync in phase 1, in successful and failed negotiations.). The ICCs provided above indicate that in phase 1 the negotiators' affective behaviors of valence are in sync (ICC=.316, p=.032), while affective behaviors of activation, AP/DD, and AD/DP are not in sync, in successful negotiations. In failed negotiations, the negotiators' affective behaviors are not found to be in sync on any of the affective dimensions. Consequently, H1b is supported for failed negotiations but not for successful negotiations. The finding that the negotiators' affective behaviors, which are characterized by the valence dimension, are in sync in successful negotiations, supports the proposition of phase model theories of negotiations, that the initial negotiation phase is described by synchrony of positive emotions (Morris & Keltner, 2000). The finding that the negotiators' affective behaviors are not in sync in failed negotiations supports the proposition of the EASI model that affective behaviors are only interpreted in terms of their strategic value and result in complementary or structural sequences rather than strictly reciprocal or synchronous ones (Van Kleef et al., 2010b).

Next we address hypothesis H3 (The affective behaviors of the negotiators are not in sync in phase 2, in successful and failed negotiations.). For successful negotiations H3 is not supported, since the negotiators' affective behaviors are found to be in sync on the affective dimensions of valence (ICC=.319, p=.030), activation (ICC=.267, p=.078), and AD/DP (ICC=.389, p=.005). Here it seems that, as proposed by phase model theories of negotiations, spirited conflict (Adair & Brett, 2005) is driven by reciprocal or synchronous behaviors, rather than complementary or structural sequences of behaviors, of mostly negatively valenced affect (Morris & Keltner, 2000). For failed negotiations H3 can be supported, again in line with the EASI model (Van Kleef et al., 2010b).

Finally, we address hypotheses H5a and H5b. Hypothesis H5a stated the following: The affective behaviors of the negotiators are in sync in phase 3, in successful negotiations. Hypothesis H5b stated the following: The affective behaviors of the negotiators are not in sync in phase 3, in failed negotiations. Hypothesis H5a is confirmed, since the negotiators' affective behaviors of valence (ICC=.368, p=.009), activation (ICC=.370, p=.009), and AP/DD (ICC=.547, p=.000) are found to be in sync in the last negotiation phase, in successful negotiations. Also hypothesis H5b is supported, as we observe that the negotiators' affective behaviors are not in sync in phase 3, in failed negotiations. Thus, we generally find that both hypotheses conform with the propositions put forth by the EASI model (Van Kleef et al., 2010b).

E.3.3. Interim Discussion: Answering RQ2

Next, we complement and complete the interpretation of these results by discussing their implications from a more holistic, and dynamic perspective, in line with research question

RQ2 (Does the inter-personal synchrony of affective behaviors within negotiation phases differ between successful and failed negotiations?). Overall, the analysis of the synchrony of affective behaviors shows different patterns for successful and failed negotiations. In successful negotiations affective behaviors are found to be in sync rather frequently. In failed negotiations, however, we observe that the negotiators' affective behaviors are not in sync in any of the three negotiation phases. Hence, the initial presumption derived from the EASI model (Van Kleef et al., 2010b), that the reciprocity or synchrony of affective behaviors is simply bound to the competitiveness or cooperativeness of a negotiation phase, can generally not be supported. One reason may be the theoretical simplification of the drivers of affective behaviors (i.e., "inferential processes and affective reactions") (Van Kleef et al., 2010b: 55), in relation to the contextual setup (i.e., cooperative or competitive) of specific negotiation phases, upon which the formulation of the hypotheses was based. Without doubt, such an explanation of affective behaviors is well grounded in literature and advantageous for the analysis of affective behaviors due its simplicity. The crucial point, however, is that in most cases affective behaviors will not only be driven by either inferential processes or affective reactions, but by both to different extents, as also pointed out by Van Kleef, De Dreu, and Manstead (2010b). Consequently, it can also be assumed that the degree of synchrony of affective behaviors may vary in cooperative as well as competitive negotiation phases. Nevertheless, this variation may partly depend on whether inferential processes or affective expressions are more dominant at a certain point in time. In this respect, it is also important to note that the EASI model is not integrated with phase model theories of negotiations. Consequently, it might well be that the general assumptions put forth by the EASI model do not always conform with the characteristics of specific negotiation phases. Thus, we argue that an explanation of the dynamics of the synchrony of affective behaviors may follow the simple, yet comprehensive, EASI model as well as the more specific assumptions and findings put forth by phase model theories of negotiations. Further note, that with respect to the latter, emotions are, however, only included marginally, as already indicated in previous chapters. Nevertheless, an interpretation of the ICCs in line with the EASI model as well as phase model theories of negotiations can help us to gain better insights with respect to the effects that were uncovered. Consequently, the above obtained and described results are discussed more broadly subsequently.

For successful negotiations we found that only the negotiators' affective behaviors of valence are in sync in phase 1. In line with the EASI model, it may thus be concluded that affective behaviors are mostly driven by inferential processes, in terms of affective behaviors described by the other three affective dimensions. Since the results provided in chapter E.1, in particular those related to hypothesis H1b (i.e., affective behaviors within the first negotiation phase), indicate that affective behaviors in phase 1 are characterized by positive valence (i.e., the pleasure half of the affective space), we can conclude that the synchrony of affective behaviors in line with the valence dimension describes a synchrony of positively valenced affective behaviors (e.g., pleasure). This may indicate that initial competitive behaviors are complemented by the establishment of trust and rapport (Adair & Brett, 2005; Putnam, 1990; Taylor, 2002a). Further, the synchronization of affective behaviors of pleasure may be a sign for the use of (positively valenced) affective persuasion (Adair & Brett, 2005), and indicate that information is revealed and shared (Morris & Keltner, 2000). Since the negotiators' affective behaviors of valence were not found to be in sync in failed negotiations in phase 1, we can further support the argument that the inter-personal synchrony of positive affective behaviors at the outset of a negotiation helps to get (successful) negotiations started (Morris & Keltner, 2000).

For the second negotiation phase we found that the negotiators' affective behaviors of valence, activation, as well as AD/DP are in sync in successful negotiations. According to the EASI model, it could thus be assumed that phase 2 is mostly driven by automatic affective reactions, in successful negotiations. The results provided in chapter E.1, in particular those related to hypothesis H3 (i.e., affective behaviors within the second negotiation phase), indicate that affective behaviors are mostly characterized by negative valence in phase 2. These results may thus also be explained in line with the signaling function of negatively valenced expressions of affect, as put forth by phase model theories of negotiations (Adair & Brett, 2005). This would, however, indicate that affective behaviors in the second negotiation phase are not predominantly driven by automatic affective reactions, but rather by a strategic and functional interpretation and use of these. In this respect, an offer made by one negotiator could be answered with expressions of negative affect by his or her opponent. If the opponent understands this signal correctly or as intended and sends an adapted offer, he or she might also reply with similar emotions and reciprocate the affective behavior of his or her negotiation partner. Such (affective) behavior may be a result of the implicit or automatic synchronization or reciprocation of negatively valenced expressions of affect, and may move negotiations forward, if negotiators adopt the affective behavior of their opponent, which can induce them to behave cooperatively or integratively. It might, however, also be that the synchronization or reciprocation of certain affective expressions is the result of more explicit and willfully induced affective behaviors. The result should, nevertheless, be comparable, that is, the synchronization or reciprocation of negatively valenced affective behaviors in line with the signaling functions of affect. Note that we observed inter-personal synchrony with respect to negative affective behaviors, in particular for the dimensions of valence (e.g., expressions of displeasure or unhappiness) and AD/DP (e.g., expressions of anger or anxiety). Hence, the synchrony of affective behaviors is based on negative and activated negative expressions of affect, such as displeasure and anger, respectively. The synchrony of affective behaviors of activation further indicates that negotiators are synchronously active in this negotiation phase. Such a heightened activation can be important for the resolution of the most prominent negotiation problems, and to move from the problem solving phase (phase 2) to the resolution phase (phase 3).

Since the negotiators' affective behaviors were not observed to be in sync in phase 2 of failed negotiations, it can be assumed that negatively valenced expressions of affect have different effects in unsuccessful than in successful negotiations. In particular, it may be that affective behaviors are not directly reciprocated, but rather induce complementary or structural sequences of behaviors in failed negotiations. For example, an expression of displeasure by one negotiator may be answered with an expression of activation (e.g., surprise or astonishment) by his or her opponent, which would describe a complementary sequence. An example of a structural sequence would be answering an expression of displeasure by sending a worse offer than one did before.

For the third negotiation phase we found that the negotiators' affective behaviors of valence, activation, and AP/DD are in sync in successful negotiations. With respect to these findings, the results provided in chapter E.1, in particular those related to hypothesis H5a (i.e., affective behaviors within the third negotiation phase), indicate that the last negotiation phase, in successful negotiations, is characterized by positively valenced affective behaviors. Overall, our findings are consistent with the EASI model, which posits that automatic affective reactions are to be assumed in cooperative contexts. Accordingly, positively valenced affective behaviors contribute to (automatic) affective reactions, and hence the synchronization or reciprocation of positively valenced affective behaviors, in the third negotiation phase in successful negotiations. These findings are also consistent with phase model theories of negotiations, which hold that the final phase in successful negotiations is characterized by the synchronization or reciprocation of positive behaviors (Bernieri et al., 1988; Morris & Keltner, 2000). Note that we observed synchrony of positive affective behaviors, which can be explained in line with the dimensions of valence (e.g., expressions of pleasure or happiness) and AP/DD (e.g., expressions of elation or enthusiasm). Hence, the synchronization of positive affective behaviors includes positive and activated positive expressions of affect, such as pleasure and elation, respectively. In addition, the negotiators' affective behaviors of activation are in sync in the final phase of successful negotiations. This indicates that both negotiators within a negotiation dyad remain active, which may ultimately benefit the successful conclusion of the negotiation.

For failed negotiations the results provided in chapter E.1, in particular those related to hypothesis H5b (i.e., affective behaviors within the third negotiation phase), indicate that affective behaviors are characterized by negative valence in phase 3. Also, the final negotiation phase in failed negotiations is still of competitive nature, unlike the final negotiation phase in successful negotiations (which is of cooperative nature). Hence, the observed lack of inter-personal affective synchrony in failed negotiations in this negotiation phase can again be explained by effects similar to those in phase 2.

Overall, the present results strongly suggest that a synchrony of affective behaviors benefits negotiation success, even if negatively valenced affective behaviors of high activation (e.g., anger or anxiety) are in sync. One important reason for this finding is that affective synchrony indicates that negotiators are on the same (affective) wavelength, which seems to benefit inter-personal (affective) understanding. As a consequence, it may be easier for negotiators to interpret and judge their opponent's (affective) behaviors as they were intended, which also facilitates and supports the use of (affective) expressions as signals, information, and feedback.

Inter-personal synchrony of positive affective behaviors (e.g., pleasure) at the outset of a negotiation encounter can be interpreted in the same manner, as laying the ground for potential negotiation success, at least to some extent. The synchrony of negatively valenced affective behaviors in the second negotiation phase of successful negotiations can be interpreted in a similar way. Inter-personal synchrony of, for example, displeasure (described by the displeasure pole of the valence dimension) or anger (described by the activated displeasure pole of the AD/DP dimension) may indicate that negotiators enter a phase driven by spirited conflict (Adair & Brett, 2005), which includes value claiming activities, competitive behaviors, but also integrative moves and the introduction and making of trade-offs (Adair & Brett, 2005; Morris & Keltner, 2000; Olekalns & Smith, 2000). Expressions of negative affect accompany and support these events, as expressions of anger can, for example, be used to signal dissatisfaction to an opponent. Further, it is argued that a phase of spirited conflict, which is driven by inter-personal synchrony or the reciprocation of negative affective behaviors, is important for successful negotiation resolution (Morris & Keltner, 2000), which is also supported by the present research. The fact that we do not observe a synchronization of negatively valenced affective behaviors in failed negotiations, may indicate that negotiators either do not understand or utilize the signaling functions of affective expressions appropriately, or that negotiators use affective expressions for personal attacks instead of focusing them on the issues under negotiation. The results of these activities in failed negotiations seem to be complementary or structural, rather than reciprocal, sequences of behavior, which may also indicate a lack of affective understanding between the negotiators. Such behaviors and activities also seem to intensify and escalate even further in the last negotiation phase in failed negotiations. The finding that negotiators establish inter-personal affective synchrony with respect to positively valenced affective behaviors in the third negotiation phase of successful negotiations indicates that negotiators again manage to establish an inter-personal (affective) understanding. The synchrony of affective expressions of, for example, pleasure (described by the pleasure pole of the valence dimension) or enthusiasm (described by the activated pleasure pole of the AP/DD dimension) is, however, driven to a lesser extent by positioning and rational argumentation (as it was the case in phase 2) (Morris & Keltner, 2000). Rather, it is social and relational aspects with the aim to establish or increase trust, rapport, or sympathy (Broekens et al., 2010; Morris & Keltner, 2000), that drive the synchrony or reciprocity of positively valenced affective behaviors in this the final negotiation phase of successful negotiations. Accordingly, such synchronous affective behaviors in the resolution phase (phase 3) are mostly intended to promote cooperation, improve or "pimp" a potential agreement, and ultimately close the negotiation successfully.

What these results also show again (just as the results provided in chapter E.1) is that an analysis of affective behaviors benefits from an integrated dimensional model of affect (Yik et al., 1999), that is, from analyzing the primary affective dimensions of valence and activation as well as the secondary 45° rotated dimensions of AP/DD and AD/DP. In this respect, we observe for successful negotiations that the negotiators' affective behaviors, which are interpretable in line with the valence dimension are in sync in phase 2 and phase 3, but also that the negotiators' affective behaviors, which are interpretable in line with the AD/DP dimension are only in sync in phase 2, and that the negotiators' affective behaviors, which are interpretable in line with the AP/DD dimension are in sync only in phase 3. Hence, in successful negotiations, the inter-personal synchrony of affective behaviors does not simply differ on the valence dimension between phase 2 and phase 3, but furthermore also on the AD/DP and AP/DD dimensions. This is important to note since the affective dimensions of AD/DP and AP/DD explain positively or negatively valenced affective behaviors of either activation or deactivation. The previous results thus also show that by including these 45° rotated affective dimensions for the analysis of affective behaviors, increases the precision of our analyses. Moreover, the present work found evidence for positive cycles of affective synchrony or reciprocity, in particular in the first and third negotiation phases, in successful negotiations. This is noteworthy because evidence for positive cycles of reciprocity is limited in general (Friedman et al., 2004; Olekalns & Smith, 2003; Weingart & Olekalns, 2004; Weingart et al., 1999), and even more so with respect to the reciprocation of emotions in negotiations (Taylor & Thomas, 2008).

E.4. Inter-Personal Level Results within Negotiation Phases: The Impact of Decision Support

To complement our analysis of the inter-personal effects of affective behaviors within negotiation phases, we now turn our attention to the potential impact of decision support on the synchrony of affective behaviors. Consequently we address RQ5 (Does the inter-personal synchrony of affective behaviors within negotiation phases differ between negotiations with and without a DSS, in successful and failed negotiations?). Again (as in chapter E.3) the synchrony of affective behaviors within negotiation phases is analyzed via Intraclass Correlation Coefficients (ICCs).

E.4.1. Analysis of the Synchrony of Affective Behaviors within Negotiation Phases

We begin by investigating the synchrony of affective behaviors for successful negotiations with and without a DSS. The corresponding ICCs for the affective dimensions of valence and activation are presented in Table 28. The ICCs are calculated and interpreted as explained in chapter E.3.

Table 28
ICCs for Valence and Activation for Successful Negotiations (with and without DSS)

	With a DSS		Without a DSS	
	ICC	Sig.	ICC	Sig.
Phase 1				
Valence	.428	.018	.170	.477
Activation	-.335	.088	.149	.536
Phase 2				
Valence	.367	.055	.285	.208
Activation	.160	.458	.374	.077
Phase 3				
Valence	.024	.912	.661	.000
Activation	.436	.015	.277	.223

For successful negotiations with decision support we observe statistically significant ICCs for affective behaviors of valence in phase 1 (ICC=.428, p=.018) and phase 2 (ICC=.367, p=.055). For successful negotiations without a DSS we observe a statistically significant ICC for affective behaviors of valence in phase 3 (ICC=.661, p=.000). These results indicate that the negotiators' affective behaviors of valence in phase 1 and phase 2 are in sync in negotiations with decision support, and that the negotiators' affective behaviors of valence are in sync in phase 3 in negotiations without decision support. Further, in successful negotiations, affective behaviors of activation are found to be mismatched in phase 1 (ICC=-.335, p=.088) and to be synchronous in phase 3 (ICC=.436, p=.015) when a DSS was provided. When no DSS was provided in successful negotiations, we find that the negotiators' affective behaviors of activation are in sync in phase 2 (ICC=.374, p=.077).

Table 29 shows the intraclass correlations and the corresponding significance values for affective behaviors on the dimensions of AP/DD and AD/DP, for successful negotiations with and without decision support.

Table 29
ICCs for AP/DD and AD/DP for Successful Negotiations (with and without DSS)

	With a DSS		Without a DSS	
	ICC	Sig.	ICC	Sig.
Phase 1				
AP/DD	.001	.995	.133	.582
AD/DP	.229	.273	.205	.384
Phase 2				
AP/DD	.138	.524	.203	.391
AD/DP	.365	.056	.395	.057
Phase 3				
AP/DD	.578	.000	.546	.002
AD/DP	.083	.705	.466	.016

For negotiations with a DSS we observe that the negotiators' affective behaviors are in sync with respect to the dimension of AP/DD in phase 3 (ICC=.578, p=.000), and with respect to the dimension of AD/DP in phase 2 (ICC=.365, p=.056). For negotiations without decision support, we find synchrony of affective behaviors on the dimension of AP/DD in phase 3 (ICC=.466, p=.016), and on the dimension of AD/DP in phase 2 (ICC=.395, p=.057), and phase 3 (ICC=.546, p=.002).

Next the ICCs for failed negotiations with and without a DSS are presented. We begin by providing the results for the affective dimensions of valence and activation, shown in Table 30. The ICCs for the affective dimensions of AP/DD and AD/DP are displayed in Table 31.

Table 30
ICCs for Valence and Activation for Failed Negotiations (with and without DSS)

	With a DSS		Without a DSS	
	ICC	Sig.	ICC	Sig.
Phase 1				
Valence	.299	.288	-.163	.647
Activation	-.332	.228	-.023	.950
Phase 2				
Valence	-.263	.360	.321	.328
Activation	.169	.572	.410	.178
Phase 3				
Valence	.344	.207	-.034	.926
Activation	-.053	.863	.342	.290

Table 31

ICCs for AP/DD and AD/DP for Failed Negotiations (with and without DSS)

	With a DSS		Without a DSS	
	ICC	Sig.	ICC	Sig.
Phase 1				
AP/DD	.141	.641	-.125	.728
AD/DP	-.059	.848	-.071	.845
Phase 2				
AP/DD	.218	.459	.159	.657
AD/DP	-.050	.870	.483	.085
Phase 3				
AP/DD	.292	.301	-.065	.859
AD/DP	-.001	.999	.282	.403

In Table 30 we observe that the negotiators' affective behaviors of valence and activation are not in sync in all of the three negotiation phases, in negotiations with and without a DSS. Table 31 shows that the negotiators' affective behaviors of AP/DD and AD/DP are not in sync in all of the three negotiation phases in negotiations with decision support. For negotiations without decision support only affective behaviors on the dimension of AD/DP are found to be in sync in phase 2 (ICC=.483, p=.085).

E.4.2. Interim Discussion: Answering RQ5

Next, the results provided above are complemented by a discussion of their implications from a holistic, and dynamic perspective in line with research question RQ5 (Does the inter-personal synchrony of affective behaviors within negotiation phases differ between negotiations with and without a DSS, in successful and failed negotiations?). Overall, for successful negotiations we observe that the negotiators' affective behaviors are in sync frequently, in negotiations with and without a DSS, whereas for failed negotiations we find that the negotiators' affective behaviors are not in sync with one exception found for failed negotiations without a DSS. Similar to the general findings for successful and failed negotiations provided in chapter E.3, we can first of all conclude that the synchronization or reciprocation of affective behaviors may not only be explained in line with the competitiveness or cooperativeness of a negotiation phase. Consequently, our interpretation of the synchrony of affective behaviors within negotiation phases rests upon the EASI model (Van Kleef et al., 2010b) as well as phase model theories of negotiations, and will be approached an a more broad level. We begin by discussing the implications of the above-obtained results with respect to the potential impact of decision support in successful negotiations. This is followed by the discussion of the implications for failed negotiations.

For the first negotiation phase in successful negotiations we observed that the provision of a DSS seems to impact the synchrony of affective behaviors on the affective dimensions of valence and activation. When no DSS is available, the lack of synchrony of affective behaviors in phase 1 resembles what we observed for failed negotiations in general (chapter E.3). Thus we can conclude that the first negotiation phase is not driven by sequences of synchronous or reciprocal affective behaviors, but rather by complementary or structural sequences of behaviors, when no DSS was available. The results provided in chapter E.2 indicate that affective behaviors in this negotiation phase can generally be characterized by positively valenced affective behaviors (i.e., the pleasure half of the affective space) in negotiations with and without decision support. Hence, affective behaviors can be described by, for example, pleasure (i.e., the pleasure pole of the valence dimension) in the first negotiation phase. With respect to the dimension of activation the results provided in chapter E.2 show that affective behaviors are characterized by a slightly higher activation in negotiations without a DSS. Thus, the results provided above indicate that in negotiations with a DSS the negotiators' affective behaviors of, for example, pleasure are in sync, and that affective behaviors of activation are mismatched (since the ICC for this dimension is negative). Accordingly, it seems that the additional benefit provided by a DSS facilitates the synchronization of affective behaviors of pleasure, and may thus help to establish positive affective synchrony between the negotiators, at the outset of a negotiation encounter. Moreover, these findings may also indicate sequences of affective persuasion (Adair & Brett, 2005), that (affective) information is shared and revealed more easily by both negotiators (Morris & Keltner, 2000), and that both negotiators use expressions of pleasure to complement other more competitive behaviors (Putnam, 1990; Taylor, 2002a). In addition, the finding that affective behaviors of activation are mismatched indicates that expressions of surprise or astonishment by one negotiator are answered by more factual expressions or explanations, and/or by expressions of tranquility, which can have the intention to calm the opponent down and/or to provide additional information to the opponent. As outlined in chapter E.3, the provision of decision support may thus benefit the subsequent negotiation process. Two important reasons for this potential effect of decision support are its information or feedback function (Baron, 1988; Bui, 1994), as well as its positive impact on cognitive resources and abilities (Blascovich, 1990, 1992; Feldman, 1995a). Accordingly, providing decision support seems to be already beneficial at the outset of a negotiation encounter, in successful negotiations.

For the second negotiation phase in successful negotiations we found that the negotiators' affective behaviors are in sync on the dimensions of valence and AD/DP when a DSS was provided. When no DSS was provided, we found that the negotiators' affective behaviors are in sync on the dimensions of activation and AD/DP. Hence, in this negotiation phase, decision support seems to influence which kinds of affective behaviors are in sync. We also know from the results provided in chapter E.2 that the second negotiation phase is characterized by negatively valenced affective behaviors of, for example, displeasure (i.e., the displeasure pole of the valence dimension), and anger or anxiety (i.e., the activated displeasure pole of the AD/DP dimension). In negotiations without decision support these affective behaviors also seem to be slightly more negative than in negotiations with decision support. In addition, affective behaviors are characterized by a slightly higher activation in negotiations without a DSS. The synchrony of affective behaviors of activated displeasure (e.g., angry, annoyed, or nervous) in negotiations with and without decision support, indicates that negotiators enter a phase of spirited conflict (Adair & Brett, 2005) and that both negotiators seem to make use of the signaling functions of activated negative expressions of affect.

In negotiations with a DSS these effects seem to be additionally complemented by the synchrony of affective behaviors of, for example, displeasure or unhappiness (i.e., affective behaviors that are described by the displeasure pole of the valence dimension). This indicates that synchronous affective behaviors are also based on less activated negatively valenced expressions of affect when a DSS was provided. Put differently, not only affective behaviors of activated displeasure (e.g., anger or anxiety) are in sync, but also less intense (or activated) affective behaviors of displeasure. Thus, with the additional benefits provided by a DSS, the synchrony of negatively valenced affective behaviors may generally have less destructive (or more constructive) potential, since negotiators seem to adjust or regulate the intensity of their affective behaviors in a synchronous manner.

In negotiations without a DSS the synchrony of affective behaviors of activated displeasure seems to be additionally complemented by the synchrony of affective behaviors of activation (e.g., surprised, astonished, or aroused). This may indicate that, without the additional benefits provided by decision support, negotiators are similarly surprised or astonished by what their opponent does.

When putting these results into perspective, we generally observe that in addition to synchronizing their behaviors with respect to affective behaviors of activated displeasure, negotiators who had a DSS at their disposal synchronized their affective behaviors of displeasure, whereas negotiators who had no DSS at their disposal synchronized their affective behaviors of activation. This may further indicate that the signaling functions of affective expressions are bound to the information, knowledge, or understanding a negotiator has about the offers that are sent and received. Importantly, since decision support provides such additional information and frees up cognitive resources, negotiators are not surprised (as when no DSS was provided) but rather understand and comprehend what is happening. Because negotiators also use competitive or distributive behaviors in this negotiation phase, it is not surprising to observe that negotiators use and synchronize expressions of displeasure, which also serve as important signals of lower affective intensity. In general, negative affective signals are needed to move the negotiation forward and to induce more cooperative or integrative behaviors subsequently (Morris & Keltner, 2000; Van Kleef et al., 2010b). If, however, negatively valenced affective behaviors of higher activation are complemented by negatively valenced affective behaviors of lower activation, the overall negotiation climate may be less intense or tense, which should ultimately be beneficial for the progression of the remaining part of the negotiation. Thus, the provision of decision support may be beneficial in the second negotiation phase, in successful negotiations, as it seems to induce negotiators to also synchronize or reciprocate less intense affective behaviors.

For the third negotiation phase in successful negotiations the provided results showed that the negotiators' affective behaviors are in sync with respect to the dimensions of activation and AP/DD if a DSS was provided, and that the negotiators' affective behaviors are in sync with respect to the affective dimensions of valence, AP/DD, and AD/DP if no DSS was provided. The results outlined in chapter E.2 further indicate that affective behaviors evolve toward the activated pleasure quadrant (e.g., toward elated, enthusiastic, or excited) in negotiations with decision support, while they evolve toward the deactivated pleasure quadrant (e.g., toward serene, content, or relaxed) in negotiations without decision support, in this negotiation phase. Hence, when provided with a DSS, the negotiators synchronize affective behaviors of, for example, enthusiasm (i.e., activated pleasure), as well as of activation. Without a DSS, the negotiators are found to synchronize affective behaviors of, for example, enthusiasm (i.e., activated pleasure) as well, but in addition also affective behaviors of, for example, pleasure, and sereneness (i.e., deactivated pleasure). Put differently, we observe that in negotiations with decision support affective behaviors are in sync with respect to the upper right area of the affective space, which indicates that positively valenced affective behaviors of higher activation are synchronized. Without decision support we observe that affective behaviors are in sync with respect to the entire right half (i.e., the pleasure half) of the affective space, which means that we observe that affective behaviors described by the dimensional poles of activated pleasure (e.g., enthusiastic), pleasure (e.g., happy), and deactivated pleasure (e.g., serene, or content) are synchronized. This indicates that positively valenced affective behaviors ranging from high to low activation are synchronized. Hence, whichever positively valenced affective behaviors (ranging from activation to deactivation) a negotiator shows, his or her opponent tends to show similar affective behaviors or tends to reciprocate these, in successful negotiations without a DSS.

One reason for these differences (between successful negotiations with and without decision support) may be that, when a DSS is made available, both negotiators know more precisely what a potential agreement will deliver and how such an agreement compares to their preferences as well as expectations. Consequently, due to the additional benefit and information provided by decision support, both negotiators express, for example, enthusiasm or excitement about the potential outcome or agreement, but at the same time remain active to try to tweak the final solution with respect to their own or the joint negotiation outcome. Without the additional benefit and information that would be provided by decision support, the negotiators have to rely on their individual subjective judgment or best educated guess when evaluating the current offers or the potential negotiation outcome. Hence, the negotiators know that they will achieve an agreement, but they do not precisely know "how good" it will be, or how it will compare to their initial preferences or expectations. As a consequence, the negotiators seem to adapt to (i.e., synchronize) or reciprocate whichever positively valenced affective behaviors (ranging from high to low activation) their opponent shows, since they are "only" generally satisfied that an agreement will be reached. Overall, these effects may further indicate that the provision of decision support results in the synchronization or reciprocation of affective behaviors on a more explicit level, while a lack of decision support results in the synchronization or reciprocation of affective behaviors on a more implicit level in line with effects of emotional contagion or automatic affect infusion, toward the end of successful negotiations.

In sum, we thus find for successful negotiations that negotiators generally synchronize or reciprocate their affective behaviors of activated pleasure (e.g., enthusiasm) in the last negotiation phase in successful negotiations, that both negotiators still remain active to tweak the final outcome if they have a DSS available, and that both negotiators tend to implicitly or automatically synchronize or reciprocate positively valenced affective behaviors if they have no DSS available. These findings are generally consistent with phase model theories of negotiations, which explain that the final phase in successful negotiations is characterized by positive sequences of synchrony or reciprocity (Bernieri et al., 1988; Morris & Keltner, 2000). In addition, these findings also support the EASI model (Van Kleef et al., 2010b), which holds that in cooperative contexts positively valenced expressions of affect tend to spread automatically, and thus are synchronized or reciprocated. Since we also find that affective behaviors of activation are synchronized or reciprocated in negotiations with decision support, we can conclude that the provision of a DSS may mitigate the automatic spread of affect in favor of inferential processes. This means that affective expressions will be interpreted and used more strategically or willfully, which may be one explanation why we observe that the synchronization or reciprocation of affective behaviors is concentrated around the activated pleasure quadrant when a DSS was provided, while the synchronization or reciprocation of affective behaviors is spread out in the right half (i.e., the pleasure half) of the affective space when no DSS was provided. Thus, we find that decision support also impacts the synchrony of affective behaviors in the third negotiation phase, and that providing decision support also seems to be beneficial toward the end of a negotiation.

In short, we overall conclude for successful negotiation that a DSS helps to establish positive affective synchrony in the first negotiation phase, helps to identify and address integrative or cooperative potential by supporting the signaling function of negatively valenced expressions of affect in the second negotiation phase, and helps to increase the negotiators' knowledge and ownership of the final outcome (indicated by the inter-personal synchrony of activation), as well as their potential satisfaction with the final outcome (indicated by the "focused" inter-personal synchrony of activated pleasure), in the third negotiation phase. Finally, these results again show that an analysis of affective behaviors benefits from an integrated dimensional model of affect (Yik et al., 1999).

Next, we turn to the discussion of the results regarding the potential impact of decision support on the inter-personal synchrony of affective behaviors in failed negotiations. Overall, we find that decision support seems to have little impact on the synchrony of affective behaviors within negotiation phases, in failed negotiations. Only in the second negotiation phase the negotiators' affective behaviors of activated displeasure (e.g., angry, annoyed, or anxious) are in sync in negotiations without a DSS, while this is not the case in negotiations with a DSS. Thus, failed negotiations with a DSS are entirely driven by complementary or structural affective sequences, while in failed negotiations without a DSS negotiators seem to trigger a negative cycle of affective synchrony or reciprocity in the second negotiation phase. Both instances, that is, the induction of complementary or structural sequences as well as the induction of a negative cycle of synchrony or reciprocity, are supported by phase model theories of negotiations (Adair & Brett, 2005; Morris & Keltner, 2000), and can be explained in line with the EASI model (Van Kleef et al., 2010b).

These results for failed negotiations may also indicate that, although no agreement was reached, negotiators without decision support fare worse than negotiators with decision support. To test this assumption, we conduct a Welch two sample t-test to compare the final contract imbalance between negotiations with and without decision support. Note that the final Contract Imbalance (CI) is based on the final offer made and refers to the absolute difference between the utility value of this offer for the offer sender and the utility value of this offer for the offer receiver. The mean values of the final CI for failed negotiations equal 0.1609 and 0.2515, for negotiations with a DSS and without a DSS, respectively. The Welch two sample t-test ($t(16.93)=-2.144$, $p=.047$) shows that the final CI differs significantly between failed negotiations with decision support and failed negotiations without decision support at the .05 level. Thus, even in failed negotiations, decision support seems to be beneficial, as it prohibits negative cycles of synchrony or reciprocity and impacts the final CI in a positive manner. Since the absolute difference between utility values (i.e., the CI) can also be interpreted as solution closeness or outcome fairness (Mitterhofer et al., 2012), we may thus also conclude that, even when no agreement could be reached, the final offer is fairer when a DSS was provided.

One explanation for this effect is provided by Van Kleef, De Dreu, and Manstead (2004b), who argue that the inter-personal synchrony or reciprocation of anger may result from time pressure emerging in negotiations. Hence, if negotiators (perceive to) run out of time or approach their negotiation deadline, negatively valenced affective behaviors may escalate more easily in an automatic manner. The perception or anticipation of negotiation failure may even become more salient when a DSS is provided, since a DSS provides additional information or feedback (Baron, 1988; Bui, 1994), and has a positive impact on the negotiators' cognitive resources and abilities (Blascovich, 1990, 1992; Feldman, 1995a). Thus, it could be argued that these benefits of a DSS mitigate the triggering of a negative cycle of synchrony or reciprocity in the second negotiation phase. Since negotiators have more information and cognitive resources available, it may be easier for them to judge which of the issues under negotiation are the main source of conflict or the current deadlock. As a consequence, negotiators may increase their effort to resolve the identified conflict, rather than trigger a conflict spiral fueled by negative affective behaviors. Hence, it also seems that the benefits provided by a DSS result in an increase of a negotiator's epistemic motivation to deal with and comprehend the informational value of affective expressions more explicitly and actively, which may further prompt a negotiator to (try to) avoid an escalation in terms of negative affective behaviors.

E.5. Intra- and Inter-Personal Level Results between Negotiation Phases: Successful and Failed Negotiations

Next, the investigation of intra-personal and inter-personal effects (i.e., actor and partner effects) of affective behaviors between negotiation phases (i.e., over time) is approached. Consequently, we seek to answer research question RQ3 (Do intra-personal and inter-personal effects of affective behaviors over time differ between successful and failed negotiations?). For this purpose Actor-Partner Interdependence Models (APIMs) are used. As explained in chapter D.6, these are estimated via multilevel modeling.

E.5.1. Analysis of Actor and Partner Effects of Affective Behaviors between Negotiation Phases

Table 32 (presented further below) shows the estimated APIMs for the influence of affective behaviors in phase 1 on affective behaviors of valence, activation, AP/DD, and AD/DP in phase 2, for successful as well as failed negotiations. We estimate the influence of affective behaviors measured by two orthogonal affective dimensions (e.g., valence and activation) in one negotiation phase (i.e., phase 1), on affective behaviors measured by each of these two affective dimensions in the subsequent negotiation phase (i.e., phase 2), in separate APIMs. Put differently, we always use both orthogonal affective dimensions that describe the entire affective space as predictors, to assess the impact of affective behaviors over time. Since the two primary (valence and activation) and the two secondary (AP/DD and AD/DP) affective dimensions are but rotational variants of each other, they both describe the same underlying data. Nevertheless, they are focused on different areas of the affective space. Thus, the implications differ with respect to whether the two primary or secondary affective dimensions are used as predictor or outcome variables.

Further note that, since true R^2 values cannot be obtained for multilevel models, we use a measure of explained variance denoted as pseudo-R^2 (Kenny et al., 2006), as proposed by Snijders and Bosker (1999). Pseudo-R^2 is defined as the "proportional reduction of prediction error" (Snijders & Bosker, 1999: 101), that is, the unexplained variance, and can thus be interpreted as the variance in the outcome measure explained by the predictors. It is calculated as follows:

$$\text{Pseudo–}\mathrm{R}^2 = 1 - \frac{\text{dyad covariance } \mathrm{s_{dd}} + \text{error variance } \mathrm{s_e}^2}{\text{dyad covariance } \mathrm{s_{dd}}' + \text{error variance } \mathrm{s_e}^{2\prime}}$$

Note that s_{dd}' and s_e^2' refer to the dyad covariance and the error variance of the unrestricted model without predictors.

Moreover, we also include the Contract Imbalance (CI) in all APIMs as control variable. The CI is calculated as the absolute difference between the utility the sender of an offer receives and the utility the receiver of an offer receives. Thus, affective behaviors in one negotiation phase are always predicted by affective behaviors and the CI from the previous negotiation phase. One reason for using the CI rather than individual utility values is that the CI is also a measure for offer or outcome fairness (Mitterhofer et al., 2012). Also, we provide a chi-square (χ^2) test of distinguishability for each estimated APIM, as proposed by Kenny, West, and Garcia (2012). If not statistically significant the null hypothesis is supported, indicating that dyad members should be treated as indistinguishable. In more detail, the χ^2 test of distinguishability tests whether the difference between the deviances of an APIM with dyad members treated as indistinguishable and an APIM with dyad members treated as distinguishable, is statistically significant. The purpose for doing so is to assess whether the assumption of indistinguishability, which was made on a theoretical and empirical basis for the entire data set in chapter D.5, holds true for individual APIMs. Since the χ^2 test of distinguishability is based on the comparison of fixed effects of nested models, APIMs are estimated via Maximum Likelihood (ML) estimation (Kenny, Mannetti, Pierro, Livi, & Kashy, 2002). As the name implies (and as outlined in chapter D.6) we use the APIM to estimate actor and partner effects. A finding of a statistically significant actor effect would indicate that a negotiator's own affective behavior in one negotiation phase impacts or contributes to his or her own affective behavior in the subsequent negotiation phase. A finding of a statistically significant partner effect would indicate that a negotiator's opponent's affective behavior in one negotiation phase impacts or contributes to the negotiator's own affective behavior in the subsequent negotiation phase (and vice versa). Actor and partner effects of the CI would be similarly interpreted, as the influence on affective behaviors originating from the CI created by the offers that were made by the negotiator him- or herself (actor effect), or by the offers that were made by the opponent (partner effect). The complete results of all estimated APIMs are found in Appendix E.

E.5.2. Actor and Partner Effects of Affective Behaviors between Phase 1 and Phase 2

First, the impact of affective behaviors in phase 1 on affective behaviors in phase 2 is assessed, for successful and failed negotiations. The corresponding APIMs are found in Table 32 for the outcome variables of valence, activation, AP/DD, and AD/DP. Note that the displayed coefficients can be interpreted as unstandardized regression coefficients.

Table 32

Actor-Partner Interdependence Models for the Effects of Affective Behaviors in Phase 1 on Affective Behaviors in Phase 2 (Successful and Failed Negotiations)

	Valence (phase 2)		Activation (phase 2)		AP/DD (phase 2)		AD/DP (phase 2)	
	Successf.	Failed	Successf.	Failed	Successf.	Failed	Successf.	Failed
Predictors (phase 1)	APIM 1	APIM 2	APIM 3	APIM 4	APIM 5	APIM 6	APIM 7	APIM 8
Intercept	** -0.203	* -0.120	0.037	0.134	** -0.117	0.012	** 0.171	** 0.177
CI (actor)	-0.021	0.073	0.046	-0.097	0.018	-0.020	0.046	-0.119
CI (partner)	** 0.242	-0.115	-0.105	0.016	0.095	-0.069	** -0.246	0.095
Valence (actor)	0.129	** 0.254	0.056	-0.197				
Valence (partner)	0.044	0.030	-0.080	-0.269				
Activation (actor)	-0.240	* -0.297	-0.068	0.233				
Activation (partner)	-0.016	0.010	* 0.215	0.204				
AP/DD (actor)					-0.069	-0.003	0.051	0.042
AP/DD (partner)					0.080	-0.012	0.054	-0.051
AD/DP (actor)					** -0.248	-0.054	0.128	** 0.486
AD/DP (partner)					0.116	0.230	0.175	0.239
Pseudo-R²	0.106	0.170	0.058	0.101	0.104	0.077	0.082	0.150
χ^2 test of Distinguishability	$\chi^2(8)$ = 11.189; p = .191	$\chi^2(8)$ = 6.330; p = .610	$\chi^2(8)$ = 8.314; p = .403	$\chi^2(8)$ = 18.272; p = .019	$\chi^2(8)$ = 10.958; p = .204	$\chi^2(8)$ = 7.540; p = .480	$\chi^2(8)$ = 9.291; p = .318	$\chi^2(8)$ = 17.581; p = .025

Note: * p < .10; ** p < .05; *** p < .01

For valence as outcome variable we observe no statistically significant actor or partner effects of valence or activation, for successful negotiations (APIM 1). Thus, neither a negotiator’s own nor a negotiator’s partner’s affective behaviors of valence or activation in phase 1 are found to impact a negotiator’s affective behaviors of valence in phase 2, in successful negotiations. The partner effect of the CI is statistically significant (t=2.306, p=.024) and positive (0.242). This effect is already interesting in its own light and will be discussed further together with the other results of the APIMs in the discussion section in chapter E.7. For failed negotiations (APIM 2) we find a statistically significant (t=2.090, p=.043) and positive (0.254) actor effect of valence, which indicates that a negotiator’s own affective behaviors of valence in phase 1, impact his or her own affective behaviors of valence in phase 2 positively. Note that, since valence (as all other affective dimensions used) refers to a bipolar affective dimension, this effect can go either way. This means that either, negotiators who show more pleasure in phase 1 show more pleasure in phase 2, or negotiators who show more displeasure in phase 1 show more displeasure in phase 2. In order deduct meaning about the direction of this effect, we also need to investigate the results obtained at the dyad level of analysis, that is, the dyad level averages (presented in chapter E.1), in line with the here obtained results at the intra-personal and inter-personal levels of analysis. This will be done after the presentation and general discussion of the results obtained from the APIMs. Coming back to the general findings provided by APIM 2, we also find a marginally statistically significant (t=-1.891, p=.066) and negative (-0.297) actor effect of activation, which indicates that one’s own activation in phase 1 impacts one’s own affective behaviors of valence in phase 2 negatively. For activation as outcome variable, we observe a marginally significant (t=1.717, p=.091) and positive (0.215) partner effect of activation for successful negotiations (APIM 3), indicating that the partner's affective behaviors of activation in phase 1 positively contribute to the actor's (i.e., the focal negotiator's) affective behaviors of activation in phase 2 (and vice versa). For failed negotiations no significant effects are found for the outcome variable of activation in phase 2 (APIM 4). For AP/DD as outcome variable we observe a statistically significant (t=-2.087, p=.040) and negative (-0.248) actor effect of AD/DP (APIM 5) for successful negotiations, which indicates that one's own affective behaviors measured by the affective dimension of AD/DP in phase 1 impact one's own affective behaviors measured by the affective dimension of AP/DD in phase 2 negatively. For failed negotiations no statistically significant effects on affective behaviors of AP/DD in phase 2 are found (APIM 6). For the outcome variable of AD/DP a statistically significant (t=-2.451, p=.017) and negative (-0.246) partner effect of CI is found for successful negotiations (APIM 7). For failed negotiations, we find a significant (t=2.220, p=.033) and positive (0.486) actor effect of AD/DP (APIM 8), which denotes a reciprocal sequence.

Overall, what these results can tell us so far is that actor and partner effects of affective behaviors, between the first and second negotiation phase, seem to work slightly different in successful and failed negotiations. One interesting finding is that, in failed negotiations, only a negotiator's own affective behaviors (of valence, activation, and AD/DP) in phase 1 impact or contribute to a negotiator's affective behaviors (of valence, and AD/DP) in phase 2. Here one observation is that negotiators show some stability with respect to affective behaviors of valence (positive actor effect of 0.254) and AD/DP (positive actor effect of 0.486) in failed negotiations. These effects thus indicate intra-personal reciprocal sequences of affective behaviors. In successful negotiations, however, we observe no such intra-personal reciprocal sequences (i.e., affective sequences denoted by actor effects). Rather we find that a negotiator's opponent's affective behaviors of activation in phase 1 influence a negotiator's affective behaviors of activation in phase 2 (i.e., an inter-personal reciprocal sequence, or partner effect). Also, we find evidence for inter-personal structural sequences for successful negotiations, since the CI resulting from offers made by the negotiation partner in phase 1 impacts the focal negotiator's affective behaviors of valence in phase 2 positively, and the focal negotiator's affective behaviors of AD/DP in phase 2 negatively. Moreover, we find additional intra-personal complementary or structural affective sequences that differentiate successful from failed negotiations as, in successful negotiations, a negotiator's affective behaviors of AD/DP in phase 1 impact his or her own affective behaviors of AP/DD in phase 2 negatively. Finally, also note the χ^2 tests of distinguishability, which indicate that the presumption of treating dyad members (i.e., negotiators within negotiation dyads) as indistinguishable from each other can generally be regarded as justified. Although the χ^2 test of distinguishability is significant for APIM 4 and 8, it is found to be non-significant for the remaining six (and hence the majority of the) models. Hence, it would be incorrect to assume overall distinguishability of dyad members. Thus, treating dyad members as indistinguishable can be justified and is moreover "beneficial in statistical terms because it allows researchers to pool estimates both within and across dyad members, which ultimately increases the precision of estimates and statistical power" (Kashy et al., 2008: 317).

E.5.3. Actor and Partner Effects of Affective Behaviors between Phase 2 and Phase 3

Next, we move to the general investigation of the impact of affective behaviors in phase 2 on affective behaviors in phase 3, again for successful and failed negotiations. The corresponding APIMs are found in Table 33 for the outcome variables of valence, activation, AP/DD, and AD/DP.

Table 33

Actor-Partner Interdependence Models for the Effects of Affective Behaviors in Phase 2 on Affective Behaviors in Phase 3 (Successful and Failed Negotiations)

	Valence (phase 3)		Activation (phase 3)		AP/DD (phase 3)		AD/DP (phase 3)	
	Successf.	Failed	Successf.	Failed	Successf.	Failed	Successf.	Failed
Predictors (phase 2)	APIM 9	APIM 10	APIM 11	APIM 12	APIM 13	APIM 14	APIM 15	APIM 16
Intercept	* 0.146	-0.028	-0.061	0.099	0.059	0.052	* -0.146	0.090
CI (actor)	-0.091	-0.123	0.059	-0.008	-0.023	-0.092	0.106	0.082
CI (partner)	-0.063	-0.254	0.156	0.012	0.068	-0.169	0.151	0.190
Valence (actor)	* 0.209	*** 0.609	0.093	-0.057				
Valence (partner)	0.085	0.133	0.031	* 0.458				
Activation (actor)	0.048	* 0.321	* 0.282	0.034				
Activation (partner)	-0.006	0.255	0.023	* 0.363				
AP/DD (actor)					** 0.312	* 0.450	0.059	* -0.472
AP/DD (partner)					0.065	** 0.610	-0.016	0.209
AD/DP (actor)					0.013	-0.099	0.178	0.195
AD/DP (partner)					-0.051	0.004	0.041	-0.114
Pseudo-R^2	0.063	0.233	0.064	0.136	0.084	0.246	0.046	0.131
χ^2 test of Distinguishability	$\chi^2(8)$ = 6.598; p = .581	$\chi^2(8)$ = 9.237; p = .323	$\chi^2(8)$ = 5.603; p = .692	$\chi^2(8)$ = 15.299; p = .054	$\chi^2(8)$ = 10.084; p = .259	$\chi^2(8)$ = 18.489; p = .018	$\chi^2(8)$ = 4.500; p = .809	$\chi^2(8)$ = 9.105; p = .334

Note: * p < .10; ** p < .05; *** p < .01

APIM 9 shows a marginally statistically significant (t=1.752, p=.084) and positive (0.209) actor effect for affective behaviors of valence in phase 2 on affective behaviors of valence in phase 3, for successful negotiations. This indicates that a negotiator’s own affective behaviors of valence in phase 2 contribute to or impact his or her own affective behaviors of valence in phase 3 positively. For failed negotiations (APIM 10) we find a statistically significant (t=2.745, p=.009) and large positive (0.609) actor effect of valence, and a marginally statistically significant (t=1.754, p=.087) and positive (0.321) actor effect of activation, on affective behaviors of valence in the third negotiation phase. These results indicate that a negotiator’s own affective behaviors of valence and activation in phase 2 impact his or her own affective behaviors of valence in phase 3 positively. For the outcome variable of activation in phase 3, we find a marginally statistically significant (t=1.856, p=.067) and positive (0.282) actor effect of activation for successful negotiations (APIM 11). For failed negotiations we observe a marginally significant (t=1.869, p=.064) and positive (0.458) partner effect of valence and a marginally significant (t=1.811, p=.078) and positive (0.363) partner effect of activation (APIM 12). These effects indicate that the negotiation partner's affective behaviors of valence and activation in phase 2 impact a negotiator's affective behaviors of activation in phase 3 positively. For AP/DD as outcome variable the results of APIM 13 show a statistically significant (t=2.226, p=.030) and positive (0.312) actor effect of AP/DD, which indicates that one's own affective behaviors of AP/DD in phase 2 impact one's own affective behaviors on the same affective dimension in phase 3 positively. For failed negotiations we find a statistically significant (t=1.992, p=.054) and positive (0.450) actor effect of AP/DD, and a statistically significant (t=2.699, p=.010) and positive (0.610) partner effect of AP/DD (APIM 14), for the same outcome variable, which indicates that a negotiator's own as well as his or her partner's affective behaviors of AP/DD in phase 2 impact a negotiator's affective behaviors of AP/DD in phase 3 positively. Finally, for the outcome variable of AD/DP, we observe no statistically significant actor or partner effects in successful negotiations (APIM 15), whereas we observe a marginally significant (t=-1.761, p=.087) and negative (-0.472) actor effect of AP/DD (APIM 16) in failed negotiations. Thus, in failed negotiations, a negotiator's own affective behaviors of AP/DD in phase 2 influence a negotiator's own affective behaviors of AD/DP in phase 3 negatively.

Overall, we find that actor and partner effects of affective behaviors, between the second and third negotiation phase, reveal interesting differences between successful and failed negotiations. One interesting finding is that a negotiator's affective behaviors of valence in phase 2 influence his or her own affective behaviors of valence in phase 3, in successful and failed negotiations. This effect on the affective dimension of valence is, however, stronger in failed (0.609) than in successful (0.209) negotiations. Thus, with respect to the outcome variable of affective behaviors of valence in phase 3, successful and failed negotiations show a similar intra-personal reciprocal pattern (although not in effect size). For failed negotiations we additionally find that the negotiators' affective behaviors of activation in phase 2 influence their affective behaviors of valence in phase 3 positively. Another similarity between successful and failed negotiations is the positive actor effect for affective behaviors of AP/DD in phase 2 on affective behaviors of AP/DD in phase 3. Here again, the actor effect describing the intra-personal reciprocal sequence (of AP/DD) is larger for failed (0.450) than for successful (0.312) negotiations. In contrast to successful negotiations, we additionally observe a positive partner effect of AP/DD, for failed negotiations. This partner effect (of AP/DD), which denotes an inter-personal reciprocal sequence, is again notably large in effect size (0.610). With respect to affective behaviors of activation in phase 3, we find an intra-personal reciprocal sequence (i.e., a positive actor effect of activation) for successful negotiations. For failed negotiations, we observe an inter-personal reciprocal sequence (i.e., a positive partner effect of activation) as well as a positive partner effect of valence, with respect to the same outcome variable (i.e., activation in phase 3). Finally, for failed negotiations we additionally find that a negotiator's own affective behaviors of AP/DD in phase 2 impact his or her own affective behaviors of AD/DP in phase 3 negatively (i.e., an actor effect). In sum, we observe that affective behaviors in the last negotiation phase are more extensively driven by actor and partner effects in failed than in successful negotiations, and that affective behaviors in successful negotiations are only driven by actor effects. Again note the χ^2 tests of distinguishability, which indicate that treating dyad members as indistinguishable is justified.

In sum, the here presented and discussed results, in line with RQ3, reveal first interesting insights with respect to the effects of affective behaviors at the intra-personal and inter-personal levels of analysis between negotiation phases. Nevertheless, to obtain a more detailed picture regarding these effects, and thus a more comprehensive picture about the functioning of affective behaviors, we need to include the previously obtained results into our discussion. This is done in chapter E.7, which provides a more holistic discussion with respect to the dynamics of affective behaviors in successful and failed negotiations.

E.6. Intra- and Inter-Personal Level Results between Negotiation Phases: The Impact of Decision Support

Next, we approach the analysis of the impact of a DSS on affective behaviors at the intra-personal and inter-personal levels between negotiation phases (i.e., actor and partner effects). Again (as in chapter E.5) APIMs are used to estimate these effects. Consequently we address research question RQ6 (Do intra-personal and inter-personal effects of affective behaviors over time differ between negotiations with and without a DSS, in successful and failed negotiations?). The complete results of all estimated APIMs are found in Appendix F.

E.6.1. Actor and Partner Effects of Affective Behaviors between Phase 1 and Phase 2: Successful Negotiations

First, the impact of affective behaviors in phase 1 on affective behaviors in phase 2 is investigated for negotiations with and without decision support, in successful negotiations. The corresponding APIMs[5] are found in Table 34 for the outcome variables of valence, activation, AP/DD, and AD/DP.

Table 34

Actor-Partner Interdependence Models for the Effects of Affective Behaviors in Phase 1 on Affective Behaviors in Phase 2 (Successful Negotiations with and without DSS)

	Valence (phase 2)		Activation (phase 2)		AP/DD (phase 2)		AD/DP (phase 2)	
	DSS	noDSS	DSS	noDSS	DSS	noDSS	DSS	noDSS
Predictors (phase 1)	APIM 17	APIM 18	APIM 19	APIM 20	APIM 21	APIM 22	APIM 23	APIM 24
Intercept	** -0.180	* -0.292	-0.014	* 0.203	** -0.135	-0.063	0.119	** 0.350
CI (actor)	-0.038	-0.020	0.096	-0.028	0.043	-0.033	0.095	-0.006
CI (partner)	** 0.290	0.282	-0.152	-0.163	0.093	0.086	** -0.314	* -0.314
Valence (actor)	0.185	0.143	0.086	-0.104				
Valence (partner)	-0.039	0.156	0.030	** -0.299				
Activation (actor)	-0.120	-0.423	-0.215	0.192				
Activation (partner)	-0.100	0.334	0.265	0.011				
AP/DD (actor)					-0.038	-0.105	-0.097	0.186
AP/DD (partner)					0.083	0.093	0.218	* -0.387
AD/DP (actor)					** -0.302	-0.142	0.007	* 0.436
AD/DP (partner)					0.088	0.237	0.144	0.072
Pseudo-R^2	0.183	0.133	0.155	0.180	0.220	0.043	0.146	0.228

Note: * $p < .10$; ** $p < .05$; *** $p < .01$

For the outcome variable of valence in phase 2 we observe no significant actor or partner effects of affective behaviors originating from phase 1, for successful negotiations with and without decision support (APIMs 17 and 18). For successful negotiations with a DSS,

[5] Note that no χ^2 tests of distinguishability can be supplied for the subsequent APIMs, as the sub-sample size is too small for estimating APIMs with distinguishable dyad members. This is also the reason why DSS was not included as a factor in the APIMs and why this potential factor was not used for estimating interaction terms.

however, we find a statistically significant (t=2.522, p=.016) and positive (0.290) partner effect of CI (APIMS 17). For affective behaviors of activation in phase 2 we observe a statistically significant (t=-2.159, p=.038) and negative (-0.299) partner effect of valence for successful negotiations without decision support (APIM 20), which indicates that a negotiator's partner's affective behaviors of valence in phase 1 impact the focal negotiator's affective behaviors of activation in phase 2 negatively. For successful negotiations with a DSS no significant actor or partner effects are found (APIM 19). For affective behaviors of AP/DD in phase 2 we find a statistically significant (t=-2.354, p=.023) and negative (-0.302) actor effect of AD/DP (APIM 21), for successful negotiations with decision support. Thus, a negotiator's own affective behaviors of AD/DP in phase 1 impact his or her affective behaviors of AP/DD in phase 2 negatively. For successful negotiations without a DSS (APIM 22) no significant actor or partner effects are observed. The APIMs 23 and 24 show that affective behaviors of AD/DP in phase 2 are significantly and negatively influenced by the CI resulting from offers made by a negotiator's negotiation partner in phase 1, in successful negotiations with and without a DSS. In addition, for successful negotiations without decision support, we observe a marginally significant (t=-1.876, p=.070) and negative (-0.387) partner effect of AP/DD, and a marginally significant (t=1.768, p=.087) and positive (0.436) actor effect of AD/DP (APIM 24). These results indicate that a negotiation partner's affective behaviors of AP/DD in phase 1 contribute negatively to one's own affective behaviors of AD/DP in phase 2, and that a negotiator's own affective behaviors of AD/DP in phase 1 influence his or her own affective behaviors of AD/DP in phase 2 positively.

Overall, for successful negotiations, we find that negotiations with and without decision support differ slightly with respect to intra-personal and inter-personal effects (i.e., actor and partner effects) of affective behaviors that originate from the first negotiation phase. One interesting difference between successful negotiations with and without a DSS is that negotiations without decision support seem to be more extensively driven by partner effects. In particular, when no DSS was provided, we find that a negotiator's affective behaviors of activation in phase 2 are negatively influenced by his or her negotiation partner's affective behaviors of valence in phase 1, which is not observed for negotiations with decision support. For negotiations supported by a DSS, we observe that a negotiator's own affective behaviors of AD/DP in phase 1 negatively contribute to his or her affective behaviors of AP/DD in phase 2, which is not found for negotiations without a DSS. Further, a negotiator's affective behaviors of AD/DP in phase 2, are negatively influenced by his or her opponent's affective behaviors of AP/DD in phase 1, as well as positively by his or her own affective behaviors of AD/DP in phase 1 (an intra-personal reciprocal sequence), when no decision support was provided. With a DSS, no such effects of affective behaviors are found for the same outcome variable. However, we observe similar negative partner effects of CI with respect to affective behaviors of AD/DP in phase 2 (i.e., similar inter-personal structural sequences) for negotiations with and without decision support. For negotiations with a DSS, we additionally find a positive partner effect of the CI in phase 1 on expressions of valence in phase 2. For negotiations with a DSS, we additionally find that the CI with respect to the offers made by a negotiator's opponent in phase 1, have a positive impact on the focal negotiator's affective behaviors of valence in phase 2, which is not observed for negotiations without decision support. In sum, besides the impact of the CI, we find that in successful negotiations with decision support affective behaviors in phase 2 are only driven by actor effects (i.e., intra-personal effects) that originate from affective behaviors in phase 1, whereas in successful negotiations without decision support affective behaviors in phase 2 are mainly driven by partner effects (i.e., inter-personal effects) that originate from affective behaviors in phase 1.

E.6.2. Actor and Partner Effects of Affective Behaviors between Phase 2 and Phase 3: Successful Negotiations

Next, the impact of affective behaviors in phase 2 on affective behaviors in phase 3 is investigated for negotiations with and without decision support, in successful negotiations. The corresponding APIMs are found in Table 35 for the outcome variables of valence, activation, AP/DD, and AD/DP.

Table 35

Actor-Partner Interdependence Models for the Effects of Affective Behaviors in Phase 2 on Affective Behaviors in Phase 3 (Successful Negotiations with and without DSS)

	Valence (phase 3)		Activation (phase 3)		AP/DD (phase 3)		AD/DP (phase 3)	
	DSS	noDSS	DSS	noDSS	DSS	noDSS	DSS	noDSS
Predictors (phase 2)	APIM 25	APIM 26	APIM 27	APIM 28	APIM 29	APIM 30	APIM 31	APIM 32
Intercept	0.001	** 0.301	-0.035	0.001	-0.024	0.213	-0.025	* -0.212
CI (actor)	0.164	-0.460	0.062	-0.172	0.159	-0.448	-0.075	0.205
CI (partner)	0.045	-0.261	0.204	-0.056	0.178	-0.225	0.110	0.143
Valence (actor)	** 0.378	-0.004	0.038	0.046				
Valence (partner)	-0.025	0.058	0.235	-0.169				
Activation (actor)	-0.026	0.070	0.293	0.313				
Activation (partner)	-0.150	-0.003	0.252	-0.196				
AP/DD (actor)					** 0.341	0.207	-0.011	0.146
AP/DD (partner)					0.160	-0.160	0.329	-0.214
AD/DP (actor)					-0.075	0.167	* 0.331	0.097
AD/DP (partner)					-0.056	-0.046	0.067	0.015
Pseudo-R^2	0.188	0.135	0.146	0.118	0.316	0.142	0.108	0.107

Note: * $p < .10$; ** $p < .05$; *** $p < .01$

The first thing to note is that we only observe significant effects for negotiations with a DSS. For affective behaviors of valence in phase 3 we find a statistically significant (t=2.250, p=.031) and positive (0.378) actor effect of valence (APIM 25), for successful negotiations with decision support. Thus, negotiators' affective behaviors of valence in phase 2 impact their affective behaviors of valence in phase 3 positively. For affective behaviors of AP/DD in phase 3 we observe a statistically significant (t=2.408, p=.021) and positive (0.341) actor effect of AP/DD (APIM 29), for successful negotiations with decision support, which indicates that one's own affective behaviors of AP/DD in phase 2 impact one's own affective behaviors of AP/DD in phase 3 positively. In addition, we find that a negotiator's affective behaviors of AD/DP in phase 2 significantly (t=1.722, p=.093) and positively (0.331) contribute to his or her own affective behaviors of AD/DP in phase 3 (APIM 31), in successful negotiations with a DSS (although only at the .10 significance level).

Overall, we note that successful negotiations with and without a DSS differ, since we find that the latter are not influenced by intra-personal or inter-personal affective behaviors, whereas the former are influenced by intra-personal affective behaviors, from phase 2 to phase 3. Hence, we only observe significant actor effects and no significant partner effects for negotiations with a DSS. Interestingly, these actor effects only denote intra-personal reciprocal sequences of affective behaviors (of valence, AP/DD, and AD/DP).

E.6.3. Actor and Partner Effects of Affective Behaviors between Phase 1 and Phase 2: Failed Negotiations

Next, we complement the above results with the analysis of failed negotiations. We start with the investigation of the impact of affective behaviors in phase 1 on affective behaviors in phase 2 for negotiations with and without decision support. The corresponding APIMs are found in Table 36 for the outcome variables of valence, activation, AP/DD, and AD/DP.

Table 36

Actor-Partner Interdependence Models for the Effects of Affective Behaviors in Phase 1 on Affective Behaviors in Phase 2 (Failed Negotiations with and without DSS)

	Valence (phase 2)		Activation (phase 2)		AP/DD (phase 2)		AD/DP (phase 2)	
	DSS	noDSS	DSS	noDSS	DSS	noDSS	DSS	noDSS
Predictors (phase 1)	APIM 33	APIM 34	APIM 35	APIM 36	APIM 37	APIM 38	APIM 39	APIM 40
Intercept	** -0.188	-0.039	* 0.241	-0.016	0.043	-0.035	*** 0.303	0.018
CI (actor)	0.213	-0.016	-0.210	0.023	-0.003	0.001	-0.299	0.026
CI (partner)	-0.186	-0.119	0.018	0.070	-0.116	-0.037	0.147	0.133
Valence (actor)	* 0.285	-0.288	-0.051	0.139				
Valence (partner)	-0.053	0.240	-0.305	0.168				
Activation (actor)	*** -0.545	0.628	** 0.656	-0.562				
Activation (partner)	-0.089	-0.264	0.485	-0.576				
AP/DD (actor)					0.179	-0.048	0.443	** -0.382
AP/DD (partner)					0.026	-0.217	0.166	-0.192
AD/DP (actor)					-0.052	0.100	*** 0.762	-0.798
AD/DP (partner)					* 0.383	-0.605	* 0.405	-0.118
Pseudo-R^2	0.407	0.216	0.246	0.371	0.208	0.175	0.338	0.356

Note: * $p < .10$; ** $p < .05$; *** $p < .01$

For the outcome variable of affective behaviors of valence in phase 2 we find a marginally statistically significant (t=1.907, p=.075) and positive (0.285) actor effect of valence, and a significant (t=-3,103, p=.005) and large negative (-0.545) actor effect of activation (APIM 33), for failed negotiations with decision support. Consequently, we observe that the negotiators' affective behaviors of valence in phase 1 impact their affective behaviors of valence in phase 2 positively, and that negotiators' affective behaviors of activation in phase

1 impact their affective behaviors of valence in phase 2 negatively, in failed negotiations with a DSS. For failed negotiations without decision support, we find no significant actor or partner effects with respect to affective behaviors of valence in phase 2 (APIM 34). For affective behaviors of activation in phase 2 (APIM 35) we observe a significant ($t=2.178$, $p=.041$) and large positive (0.656) actor effect of activation, for failed negotiations with decision support, which indicates an intra-personal reciprocal sequence. In failed negotiations without a DSS (APIM 36), again no significant actor or partner effects emerge. For affective behaviors of AP/DD in phase 2, APIM 37 shows a statistically significant ($t=2.030$, $p=.058$) and positive (0.383) partner effect of AD/DP, in failed negotiations with decision support, which indicates that a negotiator's opponent's affective behaviors of AD/DP in phase 1 contribute to a negotiator's affective behaviors of AP/DD in phase 2 positively. For failed negotiations without a DSS no statistically significant actor or partner effects are found (APIM 38). For affective behaviors of AD/DP in phase 2 we find a significant ($t=3.273$, $p=.004$) and large positive (0.762) actor effect of AD/DP, and a marginally significant ($t=1.740$, $p=.097$) and positive (0.405) partner effect of AD/DP (APIM 39), for failed negotiations with a DSS. Thus, a negotiator's affective behaviors of AD/DP as well as his or her opponent's affective behaviors of AD/DP in phase 1 impact a negotiator's affective behaviors of AD/DP in phase 2 positively. In contrast, for failed negotiations without decision support, we observe a statistically significant ($t=-2.250$, $p=.040$) and negative (-0.382) actor effect of AP/DD (APIM 40), which indicates that a negotiator's affective behaviors of AP/DD in phase 1 influence his or her own affective behaviors of AD/DP in phase 2 negatively.

Overall, for failed negotiations, these results reveal that the impacts of intra-personal and inter-personal effects (i.e., actor and partner effects) of affective behaviors differ with respect to whether a DSS was provided or not. One interesting finding is that affective behaviors in the second negotiation phase are more strongly driven by actor and partner effects (i.e., by a negotiator's own and his or her opponent's affective behaviors) in the first negotiation phase, when a DSS was provided. However, also note that the main driving forces seem to be the actor effects. In more detail, for negotiations with decision support we observe intra-personal reciprocal sequences of affective behaviors of valence, activation, and AD/DP. With respect to affective behaviors of AD/DP we additionally observe an inter-personal reciprocal sequence. Also note that the effect of a negotiator's own affective behaviors of AD/DP in phase 1 on his or her affective behaviors of AD/DP in phase 2 (i.e., the actor effect) is comparably larger (0.762) than the effect of the negotiator's opponent's affective behaviors of AD/DP in phase 1 on the focal negotiator's affective behaviors of AD/DP in phase 2 (i.e., the partner effect) (0.405). For negotiations without a DSS we, however, observe that a negotiator's affective behaviors of AD/DP in phase 2 are negatively influenced by his or her own affective behaviors of AP/DD in phase 1. Finally, for negotiations with decision support we additionally find that a negotiator's opponent's affective behaviors of AD/DP in phase 1 impact a negotiator's affective behaviors of AP/DD in phase 2 positively, as well as that a negotiator's own affective behaviors of activation in phase 1 contribute to his or her own affective behaviors of valence in phase 2 negatively. In sum, we see that in failed negotiations without a DSS affective behaviors in the first negotiation phase contribute rather weakly to affective behaviors in the second negotiation phase, whereas in failed negotiations with a DSS partner effects and in particular actor effects of affective behaviors emerging from the first negotiation phase seem to have a considerable impact on affective behaviors in the second negotiation phase.

E.6.4. Actor and Partner Effects of Affective Behaviors between Phase 2 and Phase 3: Failed Negotiations

Finally, we present the results for the impacts of affective behaviors in phase 2 on affective behaviors in phase 3 for failed negotiations with and without decision support. The corresponding APIMs are found in Table 37 for the outcome variables of valence, activation, AP/DD, and AD/DP.

Table 37
Actor-Partner Interdependence Models for the Effects of Affective Behaviors in Phase 2 on Affective Behaviors in Phase 3 (Failed Negotiations with and without DSS)

	Valence (phase 3)		Activation (phase 3)		AP/DD (phase 3)		AD/DP (phase 3)	
	DSS	noDSS	DSS	noDSS	DSS	noDSS	DSS	noDSS
Predictors (phase 2)	APIM 41	APIM 42	APIM 43	APIM 44	APIM 45	APIM 46	APIM 47	APIM 48
Intercept	-0.060	-0.346	0.182	0.035	0.089	-0.211	0.170	0.279
CI (actor)	-0.190	0.580	0.001	0.053	-0.132	0.429	0.137	-0.391
CI (partner)	-0.149	0.326	-0.095	-0.076	-0.172	0.163	0.041	-0.302
Valence (actor)	* 0.480	0.616	-0.419	* 0.614				
Valence (partner)	-0.032	0.120	** 0.639	0.040				
Activation (actor)	* 0.314	-0.266	-0.010	0.013				
Activation (partner)	** 0.355	-0.636	** 0.499	0.339				
AP/DD (actor)					0.176	0.498	* -0.611	0.155
AP/DD (partner)					*** 0.739	-0.048	0.393	0.467
AD/DP (actor)					0.124	* -0.734	0.296	0.152
AD/DP (partner)					0.107	-0.218	-0.271	0.534
Pseudo-R^2	0.362	0.284	0.373	0.213	0.479	0.443	0.286	0.092

Note: * $p < .10$; ** $p < .05$; *** $p < .01$

In APIM 41 we find a marginally statistically significant (t=1.808, p=.086) and positive (0.480) actor effect of valence, a marginally statistically significant (t=1.843, p=.079) and positive (0.314) actor effect of activation, and a statistically significant (t=2.083, p=.049) and positive (0.355) partner effect of activation, which all contribute to affective behaviors of valence in phase 3, in failed negotiations without decision support. These results indicate that a negotiator's affective behaviors of valence and activation, as well as his or her partner's affective behaviors of activation in phase 2 impact a negotiator's affective behaviors of valence in phase 3 positively. For failed negotiations without decision support no actor or partner effects are found to influence affective behaviors of valence in phase 3 (APIM 42). For the outcome variable of activation we observe a significant (t=2.199, p=.039) and large positive (0.639) partner effect of valence, and a significant (t=2.602, p=.016) and positive

(0.499) partner effect of activation (APIM 43), for failed negotiations with a DSS. Consequently we find that a negotiator's affective behaviors of activation in phase 3 are influenced by his or her partner's affective behaviors of valence and activation in phase 2. For failed negotiations without a DSS, however, we observe a marginally significant (t=1.871, p=.081) and large positive (0.614) actor effect of valence (APIM 44), which indicates that the negotiators' affective behaviors of valence in phase 2 impact their own affective behaviors of activation in phase 3 positively. With respect to affective behaviors of AP/DD in phase 3 we find a statistically significant (t=3.275, p=.003) and large positive (0.739) partner effect of AP/DD (APIM 45), for failed negotiations with decision support. This indicates that a negotiator's affective behaviors of AP/DD in phase 3 are positively influenced by his or her negotiation partner's affective behaviors of AP/DD in phase 2. For failed negotiations without a DSS we observe a significant (t=-2.105, p=.054) and large negative (-0.734) actor effect of AD/DP (APIM 46), which indicates that a negotiator's affective behaviors of AD/DP in phase 2 contribute to his or her affective behaviors of AP/DD in phase 3 negatively. For AD/DP as outcome variable we find a marginally statistically significant (t=-1.962, p=.064) and large negative (-0.611) actor effect of AP/DD (APIM 47) for negotiations with a DSS. Consequently we observe that the negotiators' affective behaviors of AP/DD in phase 2 impact their affective behaviors of AD/DP in phase 3 negatively. For failed negotiations without a DSS no actor or partner effects are observed for the same outcome variable (APIM 48).

Overall, these findings again show that intra-personal and inter-personal effects (i.e., actor and partner effects) of affective behaviors differ between failed negotiations with and without decision support. First, with respect to affective behaviors of valence in phase 3 we observe positive actor effects of valence and activation, as well as a positive partner effect of activation, for negotiations with decision support. With respect to affective behaviors of AD/DP in phase 3, we find a negative actor effect of AP/DD, for negotiations with decision support. For negotiations without a DSS we observe no actor or partner effects with respect to affective behaviors of valence and AD/DP in phase 3. Also note that we mostly observe effects originating from the focal negotiator him- or herself (i.e., actor effects), for both outcome variables of valence and AD/DP, in negotiations with decision support. Further, affective behaviors of activation in phase 3 are positively influenced by partner effects of valence and activation, and affective behaviors of AP/DD in phase 3 are found to be positively influenced by a partner effect of AP/DD, in negotiations with a DSS. For negotiations without decision support we observe that affective behaviors of activation in phase 3 are positively impacted by an actor effect of valence, and that affective behaviors of AP/DD in phase 3 are negatively influenced by an actor effect of AD/DP. Hence, in failed negotiations with a DSS, affective behaviors of valence and AD/DP in phase 3 seem to be driven more by actor effects (i.e., by the negotiators' own affective behaviors in the antecedent negotiation phase), whereas affective behaviors of activation and AP/DD in phase 3 seem to be driven more by partner effects (i.e., by the negotiation partners' affective behaviors in the antecedent negotiation phase). In negotiations without a DSS, affective behaviors of valence and AD/DP in phase 3 are not influenced by actor or partner effects, whereas affective behaviors of activation and AP/DD in phase 3 are driven by actor effects that emerge from the second negotiation phase.

In sum, the above results address intra-personal and inter-personal effects of affective behaviors between negotiation phases in line with RQ6. In order to interpret these effects in a more detailed and comprehensive manner, we need to discuss these in line with the results that were obtained in the previous chapters. This is done in chapter E.8.

E.7. General Discussion I: Successful and Failed Negotiations

To finally understand the overall dynamics (including behavioral and procedural dynamics as outlined in chapter B.1) of affective behaviors in negotiations, and the overall differences of these dynamics between successful and failed negotiations, we need to discuss the results obtained in the chapters E.1, E.3, and E.5 jointly and in an integrative manner. Put simply, we take a step back of the individual results, obtained in each of the above mentioned chapters, in order to see the bigger picture.

Generally, our results from chapter E.1 showed that affective behaviors evolve in a similar, yet not identical, manner from the first to the second negotiation phase in successful and failed negotiations. For both, successful and failed negotiations, we found that affective behaviors are characterized by the right half (i.e., the pleasure half) of the affective space in phase 1, and that affective behaviors are characterized by the left half (i.e., the displeasure half) of the affective space in phase 2, which means that affective behaviors become more negative from the first to the second phase. Hence, the evolvement patterns of affective behaviors from phase 1 to phase 2 are comparable in successful and failed negotiations. Nevertheless, successful negotiations were generally found to be characterized by more positively valenced affective behaviors in the first negotiation phase. In the second negotiation phase, however, negatively valenced affective behaviors were not found to differ between successful and failed negotiations. Consequently, the similarity of affective behaviors in phase 2, as well as the similarity of evolvement patterns of affective behaviors from the first to the second negotiation phase, indicate that it may be difficult to distinguish successful from failed negotiations in terms of affective behaviors during the first two thirds of the negotiation process. Phase model theories of negotiations (e.g., Adair & Brett, 2005; Morris & Keltner, 2000; Olekalns et al., 2003) relatedly suggest that potentially successful and failing negotiations (and the behaviors of the negotiators therein) evolve very similar over the bigger part of the negotiation process and diverge mostly toward the end of the negotiation process. Although our results in chapter E.1, based on dyad level averages, mainly support this presumption with respect to affective behaviors, the results obtained in the chapters E.3 and E.5, however, relativize this argument. Before we include the results of these chapters into our interpretation and discussion, we wish to address the question of why affective behaviors become more negative (in terms of valence) from the first to the second negotiation phase. A justification for this effect, which is to be expected (as explained in chapter B.2.4.a), is provided by the EASI model (Van Kleef et al., 2010b). Positive emotions that are expressed in the first negotiation phase are argued to be interpreted in terms of their strategic functions or values. Consequently, expressions of, for example, pleasure are interpreted as a sign that the opponent is a nice person and willing to concede, or as a sign of weakness. The result should be an increase of competition, which is reflected in the increase of negatively valenced affective behaviors in phase 2.

The results in chapter E.3 showed that the negotiators synchronize their affective behaviors of pleasure in the first negotiation phase, in successful negotiations only. In failed negotiations no affective behaviors were found to be in sync in phase 1. Hence, successful and failed negotiations already differ with respect to affective behaviors at the outset of a negotiation encounter. The synchrony of affective behaviors of pleasure in phase 1 indicates that negotiators reciprocate positively valenced affective behaviors (Bartel & Saavedra, 2000; Doherty, 1997) in successful negotiations. Interestingly, such positive cycles of synchrony or reciprocity are less commonly found and explored in negotiations (Weingart & Olekalns, 2004). On a more general level, Taylor and Thomas (2008), for example, observed higher levels of linguistic style matching for successful negotiations, which indicates that our findings are not completely unexpected. This effect of responding in-kind (Weingart et al., 1999) is important for building rapport with the opponent (Thompson & Nadler, 2002), to (initially) establish a positive inter-personal relationship (Keltner & Haidt, 1999), and to enact a positive (and shared) affective climate or reality (Barsade & Gibson, 2007). Relatedly, such inter-personal positive affective behaviors are also described as behaviors of "giving face" (Brett et al., 2007), which should have a positive impact on subsequent socio-relational behaviors. In that sense, affective behaviors have an immediate social value that shapes the future interaction between the negotiators (Kelly & Barsade, 2001; Salancik & Pfeffer, 1978). Consequently, initial positive affective synchrony helps to establish a positive affective context, which impacts the negotiators' current and future perceptions and interpretations of situational events, and thereby influences subsequent communications and affective behaviors (Bower, 1981). Possible results may be an increase of responsiveness to the opponent's behaviors (Pietroni et al., 2008a), the encouragement of inter-personal coordination (Putnam, 1985), a reduction of perceived social distance (Taylor & Thomas, 2008), an increase in flexibility (Cheshin et al., 2011), or heightened problem awareness (Nesse, 1990). Also, affectively homogeneous behaviors are positively related with a negotiator's satisfaction of the negotiation process (Locke & Horowitz, 1990). The initial lack of affective synchrony, and thus affective heterogeneity, in failed negotiations may be interpreted as a violation of the norm of reciprocity (Johnson et al., 2009), which is argued to have negative effects on the subsequent interaction process. As a result, a negotiator may perceive the negotiation as more competitive, and focus more on his or her own behaviors than those of the opponent (Druckman, 1986; Malhotra, 2004).

Our results provided in chapter E.5 support the arguments provided above and show that the synchrony or reciprocation of affective behaviors in the first negotiation phase may have important coordination functions (Keltner & Kring, 1998) for the social interaction that follows. The APIMs showed that affective behaviors in the second negotiation phase are influenced by different kinds of affective behaviors (i.e., affective behaviors that are described by different affective dimensions) in the first negotiation phase, in successful and failed negotiations. In addition, and maybe more importantly, we also found that a negotiator's affective behaviors in the second negotiation phase are mostly influenced by the behaviors of the opponent in phase 1 in successful negotiations, whereas in failed negotiations a negotiator's affective behaviors in the second negotiation phase are only influenced by his or her own affective behaviors in phase 1. Consequently, it seems that in failed negotiations, the shift of positively valenced affective behaviors to negatively valenced affective behaviors, from phase 1 to phase 2, is driven by the negotiators' own affective behaviors. This indicates that negotiators are not responsive (at least affect-wise) to the behaviors of their opponent. Rather negotiators seem to be more inward-focused on their own behaviors and show some intra-personal consistency of their own affective behaviors. In successful negotiations, however, a negotiator's affective behaviors in the second negotiation phase are also (and to a large part) influenced by the behaviors of his or her opponent in the first negotiation phase. This may be a result of the synchrony or reciprocation of affective behaviors of pleasure (i.e., the establishment of a positive affective climate) in phase 1. As a consequence, it seems that negotiators are more responsive to the behaviors of their opponent. Relatedly, it is argued that negotiators adapt to and are responsive to any kind of contextual factors in the negotiation process (Barry & Oliver, 1996; Olekalns et al., 2003; Weingart & Olekalns, 2004), and that affective behaviors serve important social and information functions that contribute to a negotiator's subsequent (strategic) behaviors (Van Kleef et al., 2004a).

Consequently, the potential synchrony or reciprocation of affective behaviors provides some sort of contextual meaning to the negotiators (Campos et al., 1989), which may induce them to interpret affective information in different ways (Keltner & Haidt, 1999). One result can be a focus on one's own affective behaviors (Schwarz, 1990), which we observed for failed negotiations. Another result can be a focus on the opponent's affective behaviors (Van Kleef, 2009), which we observed for successful negotiations. The underlying reason for these potentially different reactions is that the established affective climate (based on the synchrony of affective behaviors, or a lack thereof), also provides meaning about a negotiator's social intentions (Fridlund, 1992), or his or her relational orientation (Knutson, 1996). In this respect, affective behaviors may serve as incentives or deterrents for subsequent (affective) behaviors (Keltner & Haidt, 1999; Morris & Keltner, 2000). In particular, the initial synchronization of (positively valenced) affective behaviors can induce value creation tendencies (Brett et al., 2004), cooperation (Putnam, 1985), or coordination (Keltner & Kring, 1998). Also, initial synchronous or reciprocal behaviors may result in a feeling of obligation (Van Kleef et al., 2004a), or the willingness to be more responsive to behaviors of the opponent that follow (Kelly & Barsade, 2001; Totterdell, 2000). In sum, the synchrony of affective behaviors of pleasure in phase 1 seems to establish a positive relational climate, which encourages the negotiators to use similar behaviors subsequently, and thus to become more responsive to each other. As such, the synchrony of affective behaviors of pleasure, or a lack thereof, seems to contribute to the social dynamics of negotiations already early in the negotiation process.

Additional interesting observations are the significant partner effects with respect to the CI. Here we found that if an opponent makes offers that yield a lower CI (i.e., makes offers that are fairer) in phase 1, then negotiators tend to show more affective behaviors of displeasure and activated displeasure in phase 2. These effects can again be explained in line with the EASI model (Van Kleef et al., 2010b), and are related to the explanation of why positively valenced affective behaviors in the first negotiation phase result in more negatively valenced affective behaviors in the second negotiation phase. In particular, if a negotiator makes offers that yield a lower CI (i.e., that are fairer), the opponent may perceive that his or her counterpart is a nice person and willing to make concessions, and/or may interpret such a behavior as sign of weakness. This can result in an increase of competition and hence in more negative affective behaviors. Also note that such behaviors or reactions may moreover be the result of more implicit and automatic or more explicit and tactical (or strategic) considerations.

Next, for the second negotiation phase the results in chapter E.3 showed that the negotiators' affective behaviors of displeasure, activation, and activated displeasure are in sync in successful negotiations, and that the negotiators' affective behaviors are again not in sync in failed negotiations. Consequently, we find that inter-personal behaviors, in general, show some consistency over time. In failed negotiations, negotiators do not seem to be responsive to the behaviors of their opponent in phase 1, from phase 1 to phase 2, as well as in phase 2. In successful negotiations, however, negotiators seem to be responsive to the behaviors of their opponent in phase 1, from phase 1 to phase 2, as well as in phase 2. Hence, it may be argued that the synchrony of affective behaviors at the outset of a negotiation encounter sets the scene for, or at least facilitates, subsequent inter-personal sequences of affective behaviors. As in the first negotiation phase, the synchrony of affective behaviors in the second negotiation phase also indicates inter-personal coordination, or understanding. Note that in phase 2 in successful negotiations the negotiators synchronize or reciprocate affective behaviors that fall in or close to the second quadrant of the affective space (i.e., the upper-left area). These are affective behaviors of, for example, displeasure, anger, or arousal. These and similar emotional expressions are to be expected in the second negotiation phase (as explained in chapter B.2.4.a) of "spirited conflict" (Adair & Brett, 2005), and we observe such affective behaviors in successful as well as failed negotiations. In contrast to failed negotiations, such affective behaviors are, however, synchronized or reciprocated in this negotiation phase in successful negotiations. Put differently, in successful negotiations, negotiators synchronize their behaviors with respect to negative affective expressions. Importantly, such negative affective linkages can also be productive (Barsade et al., 2000), if the interactants are both comfortable with such a situation, as well as interpret and use negative affective behaviors in a constructive manner. In particular, it is assumed that negatively valenced affective expressions serve as important signals (Kumar, 1997; Morris & Keltner, 2000) in the second negotiation phase. For example, anger or displeasure may signal to an opponent that a previous offer should be revised. Although both, anger and displeasure, are negatively valenced affective expressions, they differ in their degree of activation, which means that negative emotions of anger (implying high activation) serve as more intense (or critical) signals than negative emotions of displeasure (implying intermediate activation). The fact that such affective behaviors are synchronized or reciprocated indicates that both negotiators use the signaling functions of these negative emotions, that both negotiators are comfortable with using such affective behaviors, and/or that both negotiators understand the constructive potential of these affective behaviors. Hence, if one negotiator, for example, expresses displeasure, his or her opponent may understand the function of this affective expression, may revise the previously made offer, and may then imitate the behavior of his or her counterpart (i.e., respond back with displeasure) such that his or her counterpart also revises his or her previous offer. The finding that we do not observe inter-personal synchrony of affective behaviors in failed negotiations in phase 2 thus indicates that negatively valenced affective synchrony, and the synchronous use of the signaling functions of negative emotions, seems to be important for reaching an agreement.

With respect to the third negotiation phase, our results in chapter E.1 generally show that affective behaviors are characterized by the right half (i.e., the pleasure half) of the affective space in successful negotiations, and by the left half (i.e., the displeasure half) of the affective space in failed negotiations, which is to be expected (as explained in chapter B.2.4.a). The APIMs shown in chapter E.5 provide further insights regarding the evolvement of affective behaviors from the second to the third negotiation phase. Overall, the results of the APIMs describe interesting patterns, which contrast the effects described before (i.e., those found in and between phase 1 and phase 2). In general, we found that affective behaviors in the third negotiation phase are influenced by similar kinds of affective behaviors (i.e., affective behaviors that are described by the same affective dimensions) in the second negotiation phase, in successful and failed negotiations.

For failed negotiations we generally find that affective behaviors in the last negotiation phase are influenced by a negotiator’s own and his or her opponent’s affective behaviors in the second negotiation phase. In contrast, the preceding results showed no inter-personal influence of affective behaviors from the first to the second negotiation phase as well as within each of these two negotiation phases. For successful negotiations we generally find that affective behaviors in the last negotiation phase are influenced by a negotiator’s own affective behaviors in the second negotiation phase. In contrast, the preceding results showed no intra-personal influence of affective behaviors from the first to the second negotiation phase. Thus, it seems that affective behaviors have different effects toward the end of a negotiation, in successful as well as failed negotiations. Researchers similarly point out that affective behaviors change over the negotiation process (e.g., Gratch et al., 2009; Marsella & Gratch, 2009) and that the potential effects of these changing affective behaviors are different in different negotiation stages (Barry & Oliver, 1996; Parkinson, 1996). One explanation for the observed changes of the effects of affective behaviors is argued to be the dominant strategic orientation of a negotiation phase (Pesendorfer et al., 2007; Pruitt & Lewis, 1975; Van Kleef et al., 2010b). In this respect, we find that successful negotiations develop toward cooperative, integrative, or value creation behaviors, while the opposite is the case for failed negotiations. Note that such patterns of evolvement are to be expected according to literature (Adair & Brett, 2005; Brett et al., 2004), as also explained in chapter B.2.4.a. Importantly, in successful negotiations, the transition from competition (phase 2) to cooperation (phase 3) is driven only by a negotiator’s own behaviors (at least affect-wise). In failed negotiations competition endures or even intensifies from phase 2 to phase 3, which is found to be driven by a negotiator’s own as well as his or her opponent’s behaviors (again at least affect wise).

With regard to these results, it may seem as if negotiation success and failure are separated by a fine line only. However, the observed evolvement toward more cooperation (phase 3 in successful negotiations) or competition (phase 3 in failed negotiations) is largely the result of the preceding negotiation process, which was shown to diverge between successful and failed negotiations. Put differently, the final move toward negotiation success or failure, from phase

2 to phase 3, and the affective behaviors in the second negotiation phase that trigger and accompany this transition, need to be considered as connected to the anterior (affective) behaviors of the negotiators. That such a presumably expected interconnection is important for the analysis of the negotiation process is also pointed out by other researchers (e.g., Butt et al., 2005, Van Kleef et al., 2004a, 2004b). The EASI model (Van Kleef et al., 2010b) further provides a theoretical framework that helps to understand the change and influence of affective behaviors, from phase 2 to phase 3, also in a more holistic manner. In particular, the model posits that negatively valenced affective behaviors (which we observe in the second negotiation phase for successful and failed negotiations) may induce subsequent cooperation or competition, depending on whether and to what extent a negotiator is motivated and willing to deal with these negative affective behaviors, as well as how a negotiator perceives, interprets, and uses these negative affective behaviors. If a negotiator is motivated to deal with the signaling functions of these behaviors and regards these as appropriate and/or productive, he or she may be likely to adopt more cooperative behaviors. If a negotiator is motivated to deal with the signaling functions of these behaviors but regards these as inappropriate and/or destructive, he or she may be more likely to adopt competitive behaviors. If a negotiator is not motivated or (cognitively) able to deal with the signaling functions of these behaviors, then negative affective behaviors should prevail, spread further in an automatic manner (in line with emotional contagion), and/or may even intensify. The important point is that the direction into which a negotiation evolves (i.e., toward more cooperation or competition) is dependent on a negotiator's perception or interpretation of the current situation, which is also dependent on the preceding part of the negotiation process. Consequently, our findings that negotiators seem to be responsive to each others' (affective) behaviors in phase 1, from phase 1 to phase 2, as well as in phase 2 in successful negotiations, indicate that the interactants are motivated and willing to work with and toward each other, which benefits the transition to a more cooperative final negotiation phase (phase 3) and culminates in successful negotiation resolution.

This positive or beneficial progression in successful negotiations, hence, is the result of anterior affective behaviors and the related consequences. In particular, by synchronizing or reciprocating affective behaviors (i.e., by being responsive to the affective behaviors of the opponent) over time, the negotiators manage to align their affective behaviors, establish affective synchrony, or coordinate their affective behaviors in a positive (i.e., productive) manner (e.g., Bartel & Saavedra, 2000; Keltner & Kring, 1998), which translates into the establishment of relational bonds or inter-personal rapport (Thompson & Nadler, 2002). Important consequences are the encouragement of more inter-personal communication (Moore et al., 1999), a reduction of the perceived social distance (Huntsinger et al., 2009; Taylor & Thomas, 2008), and a further increase of inter-personal responsiveness. For failed negotiations, which evolve toward a final phase of (intensified) competition, we observe a lack of inter-personal affective synchrony, alignment, or reciprocity in phase 1, from phase 1 to phase 2, and in phase 2, which also indicates that the negotiators are not responsive to each others' affective behaviors within and between these negotiation phases. This lack of affective synchrony, reciprocity, or behavioral responsiveness is further negatively related to the flexibility of the negotiators and their respective behaviors (Druckman, 1986), which is one central reason why we may not observe a progression or transition toward a final phase of cooperation in failed negotiations. In addition, we observe that negotiators seem to trigger a negative cycle of synchrony or reciprocity (Brett et al., 1998) in the second negotiation phase, since we found that negotiators who show more deactivated displeasure in phase 2 show more activated displeasure in phase 3. Put differently, we found that negotiators who show negatively valenced affective behaviors of lower activation in phase 2, increase their activation in phase 3 and show more negatively valenced affective behaviors of higher activation.

The above discussed results, for successful and failed negotiations, can furthermore be explained in line with attribution theory (Cheshin et al., 2011; Weiner, 1985). In particular, we find that resoluteness (i.e., a lack of responsiveness to the opponent's affective behaviors in the present case) induces affective behaviors of, for example, anger (in phase 3 in failed negotiations), while flexibility (i.e., responsiveness to the opponent's affective behaviors in the present case) induces affective behaviors of, for example, happiness (in phase 3 in successful negotiations). Moreover, these results are in accordance with Bower's network theory of affect (Bower, 1981), since we find that affective behaviors in the second negotiation phase are contingent on previous affective behaviors (and the negotiators' experiences and memories thereof). Relatedly, our results also confirm that negatively valenced affective behaviors, such as anger, may be beneficial and result in the increase of integrative behaviors, or to the contrary may be destructive and result in the increase of distributive behaviors (Liu, 2009). Hence, on a more general level, our findings support that the same, or very similar, affective behaviors may produce different kinds of outcomes, depending on the negotiation context (Van Kleef et al., 2010b; Weingart & Olekalns, 2004). In this respect, the presented results also imply that affective behaviors account for an important part of the negotiation context (at a certain point in time in the negotiation process), which further indicates that the interconnected affective behaviors of both negotiators shape the negotiation context (Hatfield et al., 1994) on a continuous basis. Consequently, if affective behaviors are in sync then affective synchrony is being established and "built-up", which results in a stronger interconnection and interdependence of the negotiators (Bartel & Saavedra, 2000), which leads to the increase of the negotiators' responsiveness to the opponent's affective behaviors over the negotiation process. Thus, we can also conclude that such effects intensify over the negotiation process, because, if affective ties are established and "kept intact" over some time, then negotiators are more likely to be more responsive to their opponent's (affective) behaviors (Totterdell, 2000), which further strengthens the affective ties between the negotiators (Totterdell et al., 1998), and so forth. Our results therefore support the basic argument that stronger inter-personal ties, and hence a better relational quality, increase the negotiators' attention to each other, which induces them to synchronize their (affective) behaviors (Bartel & Saavedra, 2000; Hatfield et al., 1994), and to work toward a jointly acceptable solution.

However, we also found that a negotiator's affective behaviors in the last negotiation phase are not influenced by his or her opponent's affective behaviors in the second negotiation phase in successful negotiations, whereas this was the case in failed negotiations. For failed negotiations this indicates that negotiators start to become responsive to the affective behaviors of their opponent only very late (and seemingly too late) in the negotiation process. Also, it indicates that, in failed negotiations, negotiators respond to their opponent's affective behaviors only once they are negative. Thus, we note that these negotiators do not manage to establish prior positive affective synchrony, which, however, seems to be important for relational development and ultimately for a successful negotiation conclusion. Consequently, these results imply that negotiators trigger a negative cycle of synchrony or reciprocity and use the observed negative affective behaviors in a destructive manner, which fosters more competitive, distributive, and negatively valenced affective behaviors in the final and third negotiation phase. For successful negotiations these results (i.e., that a negotiator's affective behaviors in the last negotiation phase are not influenced by his or her opponent's affective behaviors in the second negotiation phase) show a "break" of inter-personal responsiveness with respect to the affective behaviors of the opponent. The reason for this observation may be that negotiators were able to come very close to a jointly acceptable solution toward the end of the second negotiation phase. As a result, the negotiators may start to focus less on their opponent and more on themselves, in a sense that they, for example, move from joint problem solving or value creation behaviors, to more individualistic behaviors of value claiming or outcome improvement, which also have an important impact on a negotiator's overall satisfaction with the negotiation process as well as the outcome thereof. Hence, the observed shift in responsiveness (from being responsive to the opponent's behaviors to being responsive to one's own behaviors), which we observe for affective behaviors between the second and third negotiation phase, seems to be important for achieving an agreement.

Finally, for the third negotiation phase the results in chapter E.3 showed that the negotiators' affective behaviors of pleasure, activation, and activated pleasure are in sync in successful negotiations, and that the negotiators' affective behaviors are not in sync in this negotiation phase in failed negotiations. These findings of positive affective synchrony or reciprocity in the final negotiation phase in successful negotiations, as well as the lack thereof in failed negotiations, are in line with the results discussed above. They indicate that both negotiators are jointly in accordance, or satisfied, with the progression of the negotiation and/or the potential outcome of the negotiation. This is to be expected as it is, for example, argued that positive synchronous or reciprocal behaviors are likely to emerge in cooperative contexts (Olekalns & Smith, 2003; Weingart & Olekalns, 2004), or that positive synchrony benefits successful negotiation conclusion (Olekalns & Smith, 2000; Taylor, 2002b). In addition, these results confirm the presence and benefits of positive synchronous or reciprocal cycles (Olekalns et al., 2002), and provide evidence for the importance of such cycles of positive affective behaviors toward the end of a negotiation encounter. Also note that, although negotiators seemed to "break" inter-personal responsiveness with respect to the affective behaviors of the opponent from phase 2 to phase 3 in successful negotiations, the negotiators' affective behaviors are again in sync in the third negotiation phase. Hence, the final, as well as the overall, negotiation climate seems to be largely driven by inter-personal effects of affective behaviors in successfully concluded negotiations. The synchrony or reciprocity of positively valenced affective behaviors at the end of successful negotiations also has important social and relational functions, since such behaviors strengthen the relationship between the opponents, increase their trust toward each other, or increase their overall satisfaction (Broekens et al., 2010; Morris & Keltner, 2000). All of these effects benefit the implementation of the final agreement as well as future negotiations with the same opponent, and should thus be regarded as important additional negotiation outcomes.

E.8. General Discussion II: The Impact of Decision Support

Finally, we discuss the impacts of decision support on the overall dynamics (including behavioral and procedural dynamics as outlined in chapter B.1) of affective behaviors in negotiations, and on the overall differences of these dynamics between successful and failed negotiations. Accordingly, we provide a joint discussion of the results obtained in the chapters E.2, E.4, and E.6. Since chapter E.7 gives an extensive integrative discussion with respect to the overall dynamics of affective behaviors in and between successful and failed negotiations, the current chapter intends to put a stronger focus on the impact of decision support on these dynamics in successful as well as failed negotiations.

Overall, the results in chapter E.2 showed that affective behaviors in successful as well as failed negotiations, with and without a DSS, are generally characterized by the right half of the affective space (i.e., the pleasure half) in phase 1, and by the left half of the affective space (i.e., the displeasure half) in phase 2. In the third negotiation phase affective behaviors in successful negotiations are again characterized by the right half of the affective space, and decision support was particularly found to have an impact on the activation dimension. In failed negotiations affective behaviors are characterized by the left half of the affective space in phase 3, and decision support was again found to particularly impact affective behaviors of activation. Further, the discussion of the results at the dyad level of analysis (chapter E.2) indicated that slight differences between successful as well as failed negotiation with and without a DSS exist in the phases 1 and 2. Our results in the chapters E.4 and E.6, however, additionally showed that the provision of decision support has a more profound impact on affective behaviors in and throughout the entire negotiation process than the dyad level results initially suggest.

With respect to inter-personal affective behaviors in phase 1 the results for successful negotiations in chapter E.4 showed that the negotiators' affective behaviors of pleasure are in sync and that negotiators mismatch affective behaviors of activation (i.e., expressions of, for example, surprise, are responded to with factual expressions or expressions that have the intention to calm the opponent down) in negotiations with a DSS. For successful negotiations without decision support we found no inter-personal synchrony of affective behaviors in phase 1. Also, for failed negotiations we observed no inter-personal synchrony of affective behaviors in negotiations with and without a DSS in the first negotiation phase. Thus, the provision of decision support seems to induce negotiators to be responsive to each others' affective behaviors at the outset of successful negotiations, while this is not the case in failed negotiations. Also, successful negotiations without a DSS are not distinguishable from failed negotiations, with and without a DSS, in terms of inter-personal affective behaviors within the first negotiation phase. Consequently, the benefits that derive from being responsive to the opponent's affective behaviors (as explained in chapter E.7, for example, building inter-personal rapport, establishing a positive affective climate, decreasing the perceived social distance, or increasing inter-personal coordination) are found to be contingent on the availability of a DSS, at least in successful negotiations.

Hence, the questions to be answered are why we observe this effect of decision support in successful negotiations, and why we do not observe this effect of decision support in failed negotiations. We may address these issues with a reference to the assumption and finding that the potential responsiveness to an opponent's affective behaviors depends on the type of affect that is expressed and observed (Barsade, 2002; Bartel & Saavedra, 2000). Compared to failed negotiations, the affective behaviors of negotiators in the first phase of successful negotiations are characterized by more pleasure and more activated pleasure, which means that affective behaviors differ in terms of valence and activation. Accordingly, it seems that the more positive and the more activated the affective behaviors of the negotiators are in phase 1, the more likely it is that the provision of a DSS results in the synchronization or mismatching of affective behaviors in the first negotiation phase. One reason for this effect may be the "expressiveness" of such affective behaviors in conjunction with the positive impact decision support has on a negotiator's cognitive resources or abilities. In this connection expressiveness means that more positive, and in particular more activated, affective behaviors are more easy to detect and interpret for an observer (Bartel & Saavedra, 2000), which may make a counter-reaction to such affective behaviors more likely. If a negotiator is moreover also provided with a DSS, he or she has more cognitive resources freed up or available (than he or she would have without a DSS) to comprehend, decode, and judge the immediate environment (Singh & Ginzberg, 1996; Swaab et al., 2004), which may impact the negotiator's susceptibility to affective behaviors of the opponent positively. This line of reasoning, hence, rests upon the assumption that decision support reduces a negotiator's cognitive effort that is required to observe, judge, and comprehend external or environmental stimuli, which allows a negotiator to increase the cognitive effort with respect to other activities (cf. Blascovich, 1990, 1992; Feldman, 1995a). Other reasons for the above described influence of decision support on inter-personal affective behaviors may root in the positive impact a DSS has on its users' satisfaction (Wang et al., 2010), on agreement oriented communications (Singh & Ginzberg, 1996; Swaab et al., 2004), on the social distance perceived by the negotiators (Kersten, 2004), as well as on integrative behaviors (Rangaswamy & Shell, 1997). As a consequence, the availability of a DSS may render the interaction context (or the perception thereof) more cooperative, which can further influence the way negotiators understand and use affective expressions. In particular, as outlined by the EASI model (Van Kleef et al., 2010b), emotions tend to spread easier in an automatic manner in cooperative (as compared to competitive) negotiation contexts. This means that the the observed inter-personal affective behaviors may be the results of rather automatic inter-personal reaction processes, which result from the more cooperative negotiation context, which is further indebted to the availability of the DSS. Both of the above described lines of reasoning may be regarded as plausible explanations, which can also indicate that they are jointly responsible for the observed effects. In fact it seems that this is the case, since we do not observe inter-personal effects of affective behaviors in the first phase of failed negotiations, with and without decision support, where affective behaviors are characterized by less pleasure and activated pleasure than in successful negotiations. It may, however, be difficult to say how much more positive a negotiator's affective behaviors should be, in order to increase the likelihood of achieving an agreement. Nevertheless, if a DSS is provided and inter-personal affective behaviors are observed in the first negotiation phase, then we could conclude that it is more likely that an agreement may be in sight.

The results of the APIMs in chapter E.6 further show that decision support also seems to impact affective behaviors between the first and second negotiation phase. For failed negotiations we found that a negotiator's own affective behaviors in phase 2 are mostly influenced by his or her own affective behaviors in phase 1, but also that the observed effects of affective behaviors between these two phases are more numerous when a DSS was provided. For successful negotiations with and without a DSS we generally found that both actor and partner effects emerge between the first and second negotiation phase. Interestingly, the observed effects also show that in successful negotiations with a DSS a negotiator's affective behaviors in phase 2 are largely influenced by his or her opponent's offers in phase 1, whereas in successful negotiations without a DSS a negotiator's affective behaviors in phase 2 are largely influenced by his or her opponent's affective behaviors in phase 1.

Hence, in failed negotiations the availability of a DSS induces negotiators to be more responsive to their own affective behaviors from the first to the second negotiation phase. Thus, it seems that the benefits that come with the provision of decision support (as outlined in chapter C.3), that is its information or feedback functions (Baron, 1988; Bui, 1994), as well as its positive influence on the negotiators' cognitive resources and abilities (Foroughi, 1998; Weber et al., 2006), have an impact on the affective behaviors of the negotiators in failed negotiations. With a DSS negotiators, for example, have a better understanding of the negotiation problem and how the offers that are made compare to their own individual preferences. In addition, negotiators also have more cognitive resources available to make sense of this information and to plan how to use it. In failed negotiations, the consequence appears to be that the negotiators use these benefits of the provided analytical guidance in an "individualistic" manner, meaning that they become more responsive with respect to their own affective behaviors from phase 1 to phase 2. Put differently, negotiators seem to consolidate their own stability of (negative) affective behaviors from phase 1 to phase 2 when provided with a DSS in failed negotiations.

For successful negotiations one interesting finding was that, whereas the availability of a DSS does not seem to make a difference with respect to the negotiators' affective response (in phase 2) to the CI that the offer of the opponent yields (in phase 1), the DSS does seem to make a difference regarding the influence of affective behaviors from the first to the second negotiation phase. In particular, it seems that decision support mitigates the affective influence from the opponent between the first two phases. Hence, it may be that the progression from phase 1 to phase 2 is driven less by affective and more by information and fact-based behaviors of the negotiators when a DSS was supplied. This point is also supported by literature arguing that the provision of computerized support can render the negotiation process more "rational" (e.g., Lim, 2000). This conclusion, however, needs to be viewed in the light of our results regarding the inter-personal affective behaviors of the negotiators within the first and second negotiation phases, since we found that negotiators are responsive to their opponents' affective behaviors within these phases. As previously discussed, intra-phase synchrony (or mismatching) of affective behaviors within the first negotiation phase is supported (or may even be induced) by the availability of a DSS, since we do not observe inter-personal affective behaviors in successful negotiations without decision support. Consequently, we find that the "rationalization" of negotiations by the DSS concerns the transition from the first to the second negotiation phase, but not the negotiators' intra-phase behaviors. This finding is important for two reasons. First, it indicates that decision support can support the negotiators by establishing a positive synchronous or reciprocal affective climate at the outset of a negotiation encounter, which can be important for the potential achievement of an agreement (as discussed in chapter E.7). Second, it seems that the transition to the more competitive second negotiation phase (i.e., the phase of spirited conflict) is not predominantly driven by affective behaviors when decision support was available. This may in turn result in more productive and agreement oriented behaviors and mitigate more irrational emotional communications, in particular at the outset of the second negotiation phase. Hence, a DSS may help to ease the crossover to more competitive behaviors emotion-wise, which can enable negotiators to discover, address, and resolve critical issues faster.

The results provided in chapter E.4 further showed that the negotiators' affective behaviors are again in sync within the second negotiation phase in successful negotiations with and without a DSS. With decision support we observed inter-personal synchrony of displeasure and activated displeasure, whereas without decision support we observed inter-personal synchrony of activation and activated displeasure. Hence, it seems that the benefits of decision support regarding the transition from the first to the second negotiation phase also have a positive impact on the affective behaviors of the negotiators in phase 2 (as outlined in chapter E.4). Whereas the synchrony of activated displeasure (e.g., anger) may be expected in this phase, we found that decision support makes a difference with respect to the synchrony of other affective behaviors, that is, displeasure (with a DSS) and activation (without a DSS). Consequently, we argue that, by freeing up cognitive resources and providing additional information, a DSS also supports the negotiators to utilize affective behaviors in a more beneficial way and make use of their signaling functions. In addition, negotiators are better able to control or regulate their emotions (Côté, 2005; Richards & Gross, 2000) when they have a DSS at their disposal, since negotiators supplement the synchronization of activated displeasure by synchronizing affective behaviors of displeasure (i.e., negative affective behaviors of lower activation) when provided with a DSS, whereas they supplement the former by synchronizing affective behaviors of activation (e.g., surprise or astonishment) when not provided with a DSS. For failed negotiations we only observed inter-personal synchrony of activated displeasure in phase 2 when decision support was not available. This indicates that in failed negotiations without a DSS negotiators trigger a negative cycle of synchrony or reciprocity. When taking these results into perspective we may draw two important conclusions. First, it seems that the synchrony of affective behaviors of activated displeasure in the second negotiation phase is important for reaching an agreement, but only is beneficial (or successful in steering the negotiation toward an agreement) when supplemented by the synchrony of additional affective behaviors. The type of affective behaviors that are in sync in addition, further seems to depend on the availability of decision support. Second, when no other affective behaviors are in sync in phase 2 then a DSS, at least, seems to mitigate the triggering of a negative cycle of synchrony or reciprocity fueled by activated displeasure (e.g., anger).

With respect to the impact of affective behaviors in phase 2 on affective behaviors in phase 3, the APIMs (chapter E.6) showed that decision support also has an influence on these effects in successful and failed negotiations. For failed negotiations we found that decision support increases the negotiators' responsiveness to their own affective behaviors, as well as induces the negotiators to respond to the affective behaviors of their opponent. For successful negotiations we found that a DSS gives rise to actor effects of affective behaviors. In both successful as well as failed negotiations decision support thus seems to induce negotiators to become more responsive to affective behaviors. Interestingly, for successful negotiations we observe that a DSS only has an impact on the negotiators' responsiveness to their own affective behaviors, whereas for failed negotiations we find that decision support has a stronger impact on the negotiators' responsiveness to their opponents' affective behaviors.

For failed negotiations the results of the APIMS are interesting for a few reasons. First, we find that decision support seems to ease or induce affective behaviors between the second and third negotiation phase, since we observe more actor and partner effects of affective behaviors when a DSS was available. Additionally, with a DSS, affective behaviors described by all four affective dimensions are influenced by affective behaviors in the second negotiation phase, whereas affective behaviors described by only two affective dimensions are influenced by affective behaviors in the second negotiation phase when no DSS was provided. Second, a lack of decision support only gives rise to actor (i.e., intra-personal) effects of affective behaviors. And third, those affective behaviors in phase 3 that are influenced by the negotiators' own affective behaviors in phase 2 in negotiations without a DSS are influenced only by the negotiators' opponents' affective behaviors in phase 2 in negotiations with a DSS. Thus, when a DSS is provided negotiators are more responsive to their own and in particular their opponent's affective behaviors that are shown in the second negotiation phase. As already outlined above, we argue that this impact of decision support is largely the result of its ability or function to reduce the cognitive effort of the supported negotiators. This in turn enables the negotiators to pay more attention to the more subtle, and hence more cognitively demanding, communicative cues. In this respect, decision support enables the negotiators to pay more attention to affective behaviors, encode and decode these more easily, and thus understand and use them more appropriately or willfully.

This impact of decision support in failed negotiations also becomes more apparent when contrasting the results of the APIMs that describe affective behaviors between the second and third negotiation phases with those that describe affective behaviors between the first and second negotiation phases, discussed above. Here the interesting point concerns the observed partner effects. In particular, whereas we find that negotiators are more responsive to their own affective behaviors from the first to the second as well as from the second to the third negotiation phases when having a DSS at their disposal, negotiators only start to react to their opponents' affective behaviors from the second to the third negotiation phase in negotiations with a DSS. Consequently, it seems that once the negotiators start to realize that they may not be able to conclude the negotiation with an agreement they begin to respond to their opponent's affective behaviors. Since we do not observe such effects in negotiations without a DSS, we conclude that the negotiators' realization or perception that the negotiation may be likely to fail is based on the information the DSS provides. As a result, the increased responsiveness to the opponent's affective behaviors could be interpreted as affective persuasion (Adair & Brett, 2005) with the intentional attempt to turn the negotiation around. Put differently, this would mean that once the negotiators observe, and based on the input from the DSS may know, that they are not making progress they additionally use affective expressions to persuade their opponent to work on a jointly acceptable solution. To do so they may pick up on the affective behaviors observed by their opponent and respond to these, or use affective expressions that evoke an affective response by the opponent.

For failed negotiations this presumption is further supported by the results obtained in the chapters E.2 and E.4. Here we found that the negotiators' activation increases as well as that their affective behaviors of activated displeasure become more intense, from the second to the third negotiation phase in negotiations with a DSS. In addition, negotiators show affective behaviors of higher activation and more intense activated displeasure in the third phase of negotiations with decision support than in the third phase of negotiations without decision support. Moreover, we found the final CI to be lower (and hence the final not-agreed upon offer to be fairer) in negotiations with a DSS. Thus, it seems that because the benefits provided by the DSS make the negotiators more aware of their own affective behaviors and in particular induce them to become more responsive to the affective behaviors of their opponent, the negotiators increase their activation and show more intense affective behaviors of activated displeasure in the final negotiation phase. The increase in activation indicates that negotiators remain (and become even more) active and still try to work toward a possible agreement. Affective behaviors of activated displeasure serve as information for the opponent, signaling which issues are most pressing or should be discussed and resolved. Since the final CI is lower in negotiations with a DSS these behaviors, although they are not leading to an agreement, seem to be beneficial and effective to narrow the gap between the negotiators. This might be particularly important if the negotiation would be prolonged, or if a post negotiation mediation process would be offered to the negotiators, for example. The consequence might then be a higher likelihood of successfully concluding the initially failed negotiation after all if such options would be offered.

Regarding successful negotiations the APIMs in chapter E.6 showed that decision support has an impact on affective behaviors between the second and third negotiation phase. In particular, the results indicate that the provision of decision support induces negotiators to become more responsive to their own affective behaviors from the second to the third negotiation phase. Or put differently, negotiators seem to be more consistent regarding their own affective behaviors from phase 2 to phase 3. Interestingly, all of the observed significant effects describe intra-personal reciprocal sequences, meaning that the negotiators' own affective behaviors in phase 2 always influence their own affective behaviors on the same affective dimensions in phase 3 (i.e., valence on valence, AP/DD on AP/DD, and AD/DP on

AD/DP). An explanation for these effects again is the property of the DSS to reduce the negotiators' cognitive effort and free up cognitive resources. As a consequence the negotiators are able to (explicitly or implicitly) invest more of their cognitive resources to deal with their own emotions or general satisfaction and well-being. In this respect, research also points out that affective consistency or stability is conversely related to insecurity or risk (Morris, Larrick, & Su, 1999), as well as worry or anxiety (Barry & Friedman, 1998). Additionally, affective consistency may increase a person's effort to work on a solution or reduce avoidance behaviors (Colbert, Mount, Harter, Witt, & Barrick, 2004). Thus, the finding of intra-personally affective consistent behaviors indicates that negotiators perceive to be on the right track or to work their way successfully toward an agreement. Such a perception may also be more salient when a DSS provides the negotiators with additional information regarding their progress in the negotiation. Consequently, decision support seems to have important functions concerning the transition from the second to the third phase in successful negotiations. On one hand it reduces the negotiators' cognitive effort and enables them to become more responsive to their own emotions and affective behaviors. On the other hand it provides the negotiators with additional information and indicates to them that they are making progress. As a result, and due to the fact that, negotiators show more intra-personal consistency of their own affective behaviors, negotiators may also become more aware of their situation, that they are moving toward an agreement. Thus, affective consistency may moreover also make the potential agreement with the negotiation counterpart more salient to the focal negotiator (Obeidi et al., 2005). These explanations are further consistent with the effects of affective behaviors observed between the first and second negotiation phase, since we find that the negotiators' responsiveness to their own affective behaviors increases from between the first two to the later two negotiation phases in successful negotiations with a DSS.

Finally, the results discussed in chapter E.4 regarding inter-personal (synchronous) affective behaviors in the last negotiation phase complete the picture. For successful negotiations we found that the provision of a DSS impacts inter-personal synchrony of affective behaviors in the final negotiation phase, whereas this is not the case for failed negotiations. As discussed in chapter E.7, the synchrony of positively valenced affective behaviors is to be expected in the last (and cooperative) phase of successful negotiations (Olekalns & Smith, 2003; Weingart & Olekalns, 2004). The impact of decision support on the potential synchrony of affective behaviors in phase 3 was moreover outlined in chapter E.4 in more detail. In particular, we found that the negotiators' affective behaviors described by the entire right half (i.e., the pleasure half) of the affective space are in sync when no DSS was available to the negotiators in successful negotiations. These results indicate that negotiators synchronize or reciprocate any kind of positive affective behavior in the last negotiation phase, which can be regarded as a sign that the negotiators are content or satisfied with the agreement to be achieved. When negotiators had a DSS at their disposal in successful negotiations we, however, found the synchrony of affective behaviors to be concentrated in the areas of higher activation of the affective space (i.e., we found that the negotiators' affective behaviors of activated pleasure and activation are in sync). One explanation for this difference is that, when supplied with a DSS, the negotiators seem to remain more active in the last negotiation phase, which may be a sign that they still try to tweak the potential agreement to be achieved. In failed negotiations with as well as without decision support the negotiators' affective behaviors were not found to be in sync on any of the affective dimensions. Hence, the question that remains to be answered is why decision support has an impact on the synchrony of affective behaviors in the last phase of successful negotiations, but not in the same phase of failed negotiations.

One explanation is that if negotiators are close or about to resolve the negotiation successfully they are in a state of joint mutual agreement. As a consequence the negotiators also seem to synchronize their affective behaviors, which can be interpreted as a sign of mutual acceptance of the situation at hand. Additionally, negotiators in successful negotiations are still dependent on each other in order to close the deal, which may be one reason why they remain responsive to their opponents' affective behaviors. The lack thereof in failed negotiations, however, indicates that negotiators are not in a state of joint mutual agreement. Moreover, the third phase in successful negotiations is of cooperative nature, unlike the third phase in failed negotiations, which is of competitive nature. In this respect the present results are also in line with the EASI model (Van Kleef et al., 2010b), which posits that affective reactions emerge in cooperative contexts (i.e., that affective behaviors are in sync or reciprocated in successful negotiations in the present case) whereas this is not the case in competitive contexts. Consequently, although negotiators in successful negotiations may be generally satisfied with the upcoming agreement and thus engage in cooperative synchronous or reciprocal affective behaviors, the benefits provided by the DSS may induce them to try to improve their outcome by means of more activated and positive affective behaviors, which are synchronized or reciprocated in a similar manner by the opponent. Put differently, decision support seems to induce synchronous or reciprocal affective persuasion (Adair & Brett, 2005) in the final phase of successful negotiations. To the contrary, in failed negotiations, the benefits provided by the DSS may (only) strengthen the negotiators' understanding or perception of potential negotiation failure. Together with the results discussed in chapter E.2 (i.e., that negotiators show affective behaviors of higher activation in failed negotiations with than without decision support), the conclusion drawn in chapter E.4 was that the availability of a DSS induces the negotiators to remain active and try to turn the negotiation around, whereas negotiators without a DSS seem to give up on the negotiation. Since the third phase in failed negotiations is of competitive nature, affective behaviors are not likely to be in sync or reciprocated, but rather give rise to structural sequences of behaviors, in particular when a DSS was provided and when negotiators still try to improve their (joint) situation. Accordingly, negotiators may not respond to activated negatively valence affective behaviors with similar affective behaviors, but rather with more factual statements or revised offers. These are the reasons why the benefits provided by the DSS have different effects, in terms of inter-personal synchrony of affective behaviors, in the third phase of failed and successful negotiations.

E.9. Final Conclusions

The present work investigates the dynamics of affective behaviors in text-based electronic negotiations, the impact of these dynamics on negotiation success and failure, and the impact of a DSS on these dynamics in successful as well as failed negotiations. For this purpose we introduced a research framework that addresses the questions of how to measure affective behaviors in text-based interactions, how to analyze affective behaviors in dyadic negotiations, and how to investigate the dynamics of affective behaviors over the negotiation process. On a general level the obtained results provide interesting and novel contributions to current research on text-based electronic negotiations, that is, we show that successful and failed negotiations differ with respect to affective behaviors, that affective behaviors and their effects change throughout the negotiation process, that both intra-personal and inter-personal effects of affective behaviors have important functions in and throughout the negotiation process, and that the provision of a DSS has an influence on these effects.

Overall, one important conclusion to draw is that, even in text-based negotiations, negotiation success or failure is not only linked to more obvious or "traditionally" investigated aspects of the negotiation process, such as hard-facts and the offers being made, but also to affective behaviors that arise out of the negotiation process, and thus to more "soft" or social aspects. The analysis of procedural dynamics shows that affective behaviors can contribute substantially to our understanding of the negotiation process, meaning how it unfolds and evolves over time, as well as where, when, and why negotiations develop toward negotiation success or failure. Thus, we show that affect is not simply one factor of influence in electronic negotiations, but that affective behaviors can have a profound and continuous impact on the entire negotiation process. Moreover, we find that an investigation of intra-personal and inter-personal effects of affective behaviors can significantly improve our understanding of the negotiation process and its potential evolvement toward success or failure. In addition, the present work shows that the provision of a DSS influences affective behaviors and the effects thereof in and throughout the negotiation process, and that decision support does not simply make negotiations more efficient or "rational", but (at times) also more emotional, as it enables negotiators to comprehend and utilize affective behaviors in a more explicit, willful, and appropriate manner.

The obtained results and derived conclusions support theoretical and empirical literature in the areas of negotiation as well as electronic negotiation research, and also contribute to these. In line with other research we show and point out that it is important to study the evolvement of the negotiation process (Brett et al., 2004; Vetschera, 2013; Weingart & Olekalns, 2004), and the affective behaviors that shape and contribute to this evolvement (Barry & Oliver, 1996; Griessmair & Koeszegi, 2009; Morris & Keltner, 2000), to examine why negotiations succeed or fail. On a general level we support the main argument of the dynamic model of affect (Barry & Oliver, 1996) that affect may play potentially different roles at different stages in the negotiation process and that the negotiators' individual affective behaviors and experiences are regarded as being interconnected throughout the negotiation process. Thus, we acknowledge that emotions and affective behaviors change throughout social encounters (Gratch et al., 2009; Marsella & Gratch, 2009) and evolve over the (electronic) negotiation process (Butt et al., 2005, Van Kleef et al., 2004a, 2004b). Our results also confirm that, since negotiations are situations of inter-personal interdependence (Turel, 2010), negotiators also establish some sort of affective interdependence (Barsade, 2002; Barsade & Gibson, 2007) and influence each other affect-wise (Barsade et al., 2000; Gump & Kulik, 1997; Totterdell, 2000).

Moreover, we argue and find that the impact of affective behaviors is complex and needs to be considered at an intra-personal as well as inter-personal level. With respect to the latter we can, for example, support the argument that affective behaviors also serve important coordination functions that seem to be important for successful negotiation resolution (cf. Putnam, 1990), that the negotiators' responsiveness to their opponents' affective behaviors is contingent on negotiation progress in terms of the negotiation phase the negotiators are in (cf. Taylor & Thomas, 2008), and that a lack of synchrony of affective behaviors may hinder negotiation progress (cf. Druckman, 1986). Hence, we observe that the inter-personal synchrony or reciprocation of affective behaviors largely contributes to the (social) dynamics of electronic negotiations (Van Kleef et al., 2004a, 2004b). In addition, we provide evidence for positive cycles (Friedman et al., 2004; Olekalns et al., 2002; Weingart & Olekalns, 2004) as well as negative cycles (Brett et al., 1998; Nielek et al., 2010; Olekalns et al., 2002) of inter-personal affective behaviors and indicate that they are related to successful and failed negotiations, respectively. Also, our results support that negatively valenced affective behaviors can be constructive and have positive consequences (Brett et al., 1998; Olekalns et al., 2002), in line with the signaling functions of affective expressions (Adair & Brett, 2005).

The employment of the APIM (Kashy & Kenny, 2000; Kenny & Cook, 1999) further allowed us to investigate inter-personal effects of affective behaviors (i.e., effects of inter-personal reciprocity or influence) as well as intra-personal effects of affective behaviors, from one negotiation phase to another. Importantly, the APIM enables us to treat interdependencies in dyadic negotiation data in a more appropriate way (Turel, 2010) than it would be the case if we would, for example, focus our attention on dyadic index variables only. As also argued and indicated by other related pieces of negotiation research (Butt et al., 2005; Liu, 2009; Overbeck et al., 2010) we show and highlight that an analysis of affective negotiation behaviors benefits from a joint investigation of inter-personal and intra-personal effects, since the negotiators' behaviors are very likely to be contingent on their opponents' as well as their own behaviors. In this respect, the present work also breaks new ground by showing that successful and failed text-based electronic negotiations differ with respect to intra-personal and inter-personal effects of affective behaviors (on subsequent affective behaviors). Also, our results provide initial evidence that considering these effects may enable us to detect potential negotiation success or failure already very early in the negotiation process. For instance, we found that the negotiators' affective behaviors are already in sync in the first phase of successful negotiations, which is not the case in failed negotiations. With respect to the entire negotiation process, we observed that in successful negotiations negotiators synchronize or reciprocate their opponents' affective behaviors more often within each of the negotiation phases than in failed negotiations. From one negotiation phase to another, however, we found that negotiators are more responsive to their opponents' affective behaviors in failed negotiations, whereas negotiators are more responsive to their own affective behaviors from one phase to another in successful negotiations.

Moreover, we contribute to earlier research on DSSs (e.g., Delaney et al., 1997; Foroughi et al., 1995; Rangaswamy & Shell, 1997) and complement more recent advances in this domain (e.g., Koeszegi et al., 2006; Schoop et al., 2014; Vetschera et al., 2006; Weber et al., 2006), showing that more attention of research may be required to understand the impact of DSSs in electronic negotiations, as well as design and implement more advantageous and sophisticated support systems. In particular, the present work adds to the still sparse literature on the impact of decision support on affective behaviors in electronic negotiations. For instance, we show that the provision of a DSS is beneficial for the inter-personal synchrony of affective behaviors within negotiation phases, and that the provision of a DSS induces negotiators to be more consistent with respect to their own affective behaviors from the second to the third negotiation phase whereas a lack of decision support mitigates this effect, in successful negotiations. In failed negotiations, the provision of a DSS induces negotiators to become more responsive to their own as well to their opponents' affective behaviors from one negotiation phase to another whereas the lack of a DSS largely mitigates these effects.

One important effect of decision support on affective behaviors that both successful as well as failed negotiations share is its positive impact on activation toward the end of negotiations. In more detail, the present results provide initial evidence that the availability of a DSS increases the negotiators' activation of their affective behaviors from the second to third negotiation phase as well as within the third phase, and that intra-personal and inter-personal effects of affective behaviors from the second to the third negotiation phase largely concern affective behaviors of higher activation when a DSS is provided. This indicates a few important points regarding the impact of decision support in electronic negotiations. In general, it seems that DSSs have a particularly important impact on affective behaviors in the last third of negotiations. Here negotiators show more intense affective behaviors and are also more responsive to or influenced by these on an inter-personal as well as intra-personal level. This indicates that the negotiators' behaviors are guided by and that their attention is drawn to such affective behaviors, as more activated affective expressions provide important information, for example, about which issues are more important than others and require more attention and discussion. Thus, an increase in activation also indicates more engagement in the negotiation process, which may either help to improve the final outcome (as in successful negotiations) or to decrease the distance to a potential agreement (as in failed negotiations, where negotiators seem to try to turn the negotiation around).

Consequently, what we observe is that decision support increases the negotiators' epistemic motivation (De Dreu & Carnevale, 2003; Kruglanski, 1989; Van Kleef et al., 2004b), that is, "the desire to develop and maintain a rich and accurate understanding of the world, including the negotiation task" (Van Kleef et al., 2004b: 511). This may be expected due to two (interconnected) reasons. First, the end (or the last phase) of a negotiation, naturally, is decisive with respect to whether the negotiators are able to reach an agreement, as well as how this potential agreement will look like, for example, in terms of joint and individual gains, or outcome satisfaction. Second, as DSSs provide their users with additional feedback and information benefits (Bui, 1994; Singh & Ginzberg, 1996), and thus also free up cognitive resources and reduce cognitive effort (cf. Blascovich, 1992; Feldman, 1995a), negotiators have more cognitive resources available to judge their situation and react accordingly. Consequently, DSSs seem to increase the negotiators' epistemic motivation in a complex and important stage of the negotiation process. Put differently, what we find is that decision support increases the negotiators' "epistemic ability", that is, their ability to increase their epistemic motivation. This effect is not be underestimated, since it indicates that DSSs also have an important impact on the "soft" aspects of the social interaction process, even if a DSS is only designed to support the analytical aspects of the negotiation process, as it was the case in the negotiations that were analyzed in the present work. Thus, this finding may have important implications for future analyses of the impacts of as well as the design of decision support components and systems. In this respect, our results also provide support for the theoretical considerations put forth by Swaab, Postmes, and Neijens (2004). The authors point out that, since NSSs enact and stimulate a shared identity or reality between the negotiators in interaction, support systems should foster shared cognition and perceptions of the interactants. Hence, it is argued that support systems should impact central factors that drive the negotiators' behaviors in the negotiation process or put differently, factors that also determine how negotiators behave on a social level, for which our results provide support. The present work also conforms with the conceptual work of Broekens, Jonker, and Meyer (2010) who argue in favor of developing and designing affective NSSs that are not only tailored to the support of analytical but also affective aspects and activities. Since our results indicate that a "traditional" analytic support system already has an impact on the negotiators' affective behaviors, it is likely that more specialized affective support systems can provide additional benefits and significant improvements regarding the efficiency and effectiveness of the negotiation process and outcome. This may translate into less misunderstandings, higher negotiation agreement rates, better joint or individual outcomes, as well as faster negotiation conclusions, which may not only save negotiators time but also monetary resources. Additionally, personal attacks may be reduced, negatively valenced affective behaviors may be less extreme, and the negotiators' satisfaction with the negotiation process and outcome may be improved, which should benefit the implementation of the negotiation outcome, or repeat negotiations with the same counterpart(s).

Also, the present work provides implications for researchers and practitioners. On a general level, the employed research framework to study the dynamics of affective behaviors in dyadic text-based electronic negotiations indicates that in order to really "pry open the black box of the negotiation process" (Weingart & Olekalns, 2004: 154) a number of issues should be considered. In particular, our results indicate that treating and analyzing interdependencies in dyadic interaction data in more appropriate ways can reveal important insights regarding inter-personal as well as intra-personal behavioral effects, which may remain hidden if we would focus our attention on one of these effects, or dyadic averages, for example, only. Moreover, only defining and investigating the negotiation process as a dynamic and changing process, rather than one static entity, enables us to understand what happens during or throughout a negotiation encounter. Naturally, these issues are not only restricted to an analysis of affective behaviors, but are important for the analysis of any kind of behaviors that arise out of and shapes a negotiation encounter.

With respect to the elicitation and analysis of affective behaviors, our results indicate that relying on a dimensional perspective of affect may be beneficial or even advantageous, compared to a discrete perspective of emotions. In fact, what we are really interested in when making sense of the affective behaviors of the negotiators is the location in the affective space, and not so much a specific affective term. For example, it may not make much difference whether negotiators show affective expressions of either displeasure or unhappiness, or either enthusiasm or excitement. Both affective terms in each of the two exemplary pairs of affective terms are located in the same area of the affective space and have comparable functions and implications. Also some people may use the terms in these two exemplary pairs of affective terms interchangeably. Hence, we argue that investigating affective behaviors in terms of the areas of the affective space they fall in may be more appropriate and may provide us with conclusions that are more generalizable, which is important when trying to design support systems that can and will be used by a lot of different people.

Finally, potential users of future (affective) NSSs may benefit from research such as ours. Novice negotiators may, for example, be made aware by the system regarding the affective interpretation of their opponents' as well as their own messages sent and received, which can mitigate misunderstandings or deadlocks. Expert negotiators may be trained by such systems with respect to appropriate affective behaviors, or may be guided with respect to the strategic use of affective behaviors. Nevertheless, in order to design such affective NSSs more research effort is required.

E.9.1. Limitations and Future Outlook

One potential limitation of the current research is its focus on one specific negotiation case that was used for the negotiation simulations. Although the employed case may be regarded as representative example for business negotiations, future studies may wish to use different negotiation cases, for example, more cooperative or competitive ones, to see whether our conclusions with respect to affective behaviors hold in varying negotiation situations. Further, since our subjects that engaged in the negotiations were students it may be interesting to see whether our results also hold true in a non-student population. One may, for example, conduct negotiation experiments with professionals that are either expert or non-expert negotiators. Such studies may help us to understand whether potential affective NSSs should be more user-tailored to specific target groups. Also, the elicitation of affective behaviors via MDS rests upon the judgments of uninvolved observes or raters. Hence, it would be interesting to examine if the negotiators themselves judge their affective behaviors similar to uninvolved observers. To collect such data researchers would need to consider this issue prior to the start of the negotiation experiments and decide on a proper data collection method. One very viable and unobtrusive method for collecting self-rated data on affective behaviors may be the use of the affect grid (Russell et al., 1989b). Moreover, the present work is focused on the analysis of the impact of affective behaviors on subsequent affective behaviors and provides important evidence that affective behaviors should be considered in future studies of (electronic) negotiations and NSSs. Future research may additionally consider the interconnection between affect and other potentially important aspects shaping the negotiation process, such as the substantive and communication levels, as recently proposed by Vetschera (2013). Finally, the present work may also be interesting for domains other than negotiation research. For example, research interested in social media (e.g., Twitter, Facebook, LinkedIn) may benefit from an analysis of affective behaviors, to gain a better understanding of the way users communicate with each other, as well how companies and organizations may be better able to (emotionally) involve their consumers. Although we see that some research is beginning to develop an interest in this domain, the analysis of affect is mostly focused on the valence (i.e., pleasure vs. displeasure) being communicated. Employing a two-dimensional perspective for the analysis of affect and, for example, mapping messages onto a two-dimensional space of affect (defined by a valence and an activation dimension), may nevertheless provide a clearer picture regarding affective communications, since our research shows that also the activation dimension provides important information for the understanding of affective behaviors in text-based communication.

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APPENDIX

The Appendix incorporates the following: Appendix A includes exemplary negotiation messages as referenced in Chapter D.3.4.a.4.2. Appendix B includes repeated measures ANOVAs for successful and failed negotiations, as references in Chapter E.1. Appendix C includes descriptive statistics of successful as well as failed negotiations with and without decision support, as referenced in Chapter E.2 Appendix D includes repeated measures ANOVAs for successful as well as failed negotiations with and without decision support, as referenced in Chapter E.2. Appendix E includes the complete outputs of the APIMs for successful and failed negotiations, as referenced in Chapter E.5. Appendix F includes the complete outputs of the APIMs for successful as well as failed negotiations with and without decision support, as referenced in Chapter E.6.

Appendix A

This Appendix includes the negotiation messages that were shortened or not included in Chapter D.3.4.a.4.2.

Appendix A.1. Dimensional Pole: Pleasure

Shortened Messages

Message c20: “Hi Mrs. Koller,Seems like we can finish this today - 1 day ahead of scedule!Of course proposing 55/45 profit split in your favor was a mistake on my side.:-) It should have been the other way around, but i was thinking in terms of my profit, whereas the system states the profit from your side. Anyway fo the sake of agreement lets make this 50/50 - as it maybe should have been, but I had some confusing information (60% minimum). And I recently received a mail that states again that I am not allowed to violate my constraintsSo for your info I have following […]. It has been nice negotiatiating with you. Lets accept this and get it over with.BTW: I am doing this for a course at the Vienna university - how about you?Best regardsHusar”

Message a43: “Hi Kevin,Thank you for your e-mail. I think you made a mistake in your last offer in changing the payment issue from Mihalits to HalfHalf. That is why I answer to the previous message.I'm glad to tell you that Metallurg accepts this offer. Your honesty, as well as mine, made it possible to have a very efficient negotiation. Thank you for this.Best regards,Husar.”

Message c106: “Hi Mrs. Husar,I’am very pleased with your last offer and I really think that we are very close on reaching an agreement. I made some small adjustments,

[…]. Because you stress this issue so much, I understand your importance for this issue. Although my aspiration level is 5 years during, I am willing to double this to 10 years if you agree to increase the additional compensation for the Ukrainian workers to 16%. Or,Mihalts agrees on the additional compensation of 10% and we split the payment of common workers; half Metallurg and half Mihalts. Court of jurisdictionGermany OK I'm content with the way we made progress in our communication and rapidly replay on each other's mails. Have a great weekend!Mrs. Koller Ps; Where I'm it hasn't been snowing, I wish! How much snow is there over there?"

Additional Messages

Message a43: "Hi Kevin,Thank you for your e-mail. […].I'm glad to tell you that Metallurg accepts this offer. Your honesty, as well as mine, made it possible to have a very efficient negotiation. Thank you for this.Best regards,Husar." (loading on dimension V = 0.,5816; loading on dimension A = -0.0281)

The raters described the deck containing this message for example as: Honest, happy, pleasant, appreciatory, thankful, positive, pleased, optimistic, polite, nice, personal, considerate, cooperative, informal, or cajoling.

Message c106:"Hi Mrs. Husar,I'am very pleased with your last offer and I really think that we are very close on reaching an agreement. […] I'm content with the way we made progress in our communication and rapidly replay on each other's mails. Have a great weekend!Mrs. Koller Ps; Where I'm it hasn't been snowing, I wish! How much snow is there over there?" (loading on dimension V = 0.5723; loading on dimension A = -0.0209)

The raters described the deck containing this message for example as: Cooperative, positive, happy, glad, nice, polite, pleased, optimistic, accommodating, sympathetic, intimate, friendly, obliging, trusting, or personal.

Appendix A.2. Dimensional Pole: Displeasure

Shortened Messages

Message c59: "Husar,I am very disappointed with your last offer. It feels like a message of distrust. Thanking into consideration the new security software you installed and the upgrades of the infrastructure (which, in my humble opinion, will also contributes to the future existence of Metallurg Technologies) I find a 50-50 split unacceptable. We bring a new technology to the project, which we believe is the most promising innovation in airline engine design in recent history. It wasR&D department that succeeded in developing this technology.

You must agree with me, because in your first counteroffer you proposed a 70-30 split yourself. Therefore, I will never go lower than […]. Then the issue of the number of members on the Board of Directors. I find you argument a bit weak. Off course, we both want the majority, but I think that there is more at stake for Mihalits AG. We come with an advanced technology, if something goes wrong, we lose a lot of invested time and money. I was given the instructions to negotiate 4 out of 5 members for Mihalits, but, as a show of good faith, I am willing to lower that to […]. Regarding the duration of the contract, I think I can see eye to eye on that; provided that we agree on the payment of the workers. Surely, we will pay the wages of our own staff. We are willing to pay 50% of the wages for the Ukrainian workers and staff hired especially for the joint venture. But when Mihalits pays a percentage, the level of wages should meet a minimum standard. We have to keep our good reputation. But also, another reason is that this will protect us both against any kind of loss of knowledge to a competitor. A well-paid and satisfied employee is less induced to be bribed or to leave the firm. I can understand your argument that it might be difficult to pay some workers more than others, however Mihalits paying partial wages, should be a good argument. If we can not agree on this point, I must lower the duration of the contract to 5 year, with an option to renegotiate at that point. Also, if the additional compensation of the Ukrainian workers is too low, we are not willing to pay a percentage of the wages.I hope we can agree on these issues."

Message c202: "Dear K. Koller,I didn't understand your point of view. Your previous offer was the same as the last. I have already told you that we couldn't accept it. As I understood you don't want to offer us any compromise solution and you want to have all the benefits. It doesn't work. We are partners and we should find a solution that will be acceptable for both of us.If the secrecy clause is so important for you, we can agree But for us is very important the duration of contract Focusing on the court of jurisdiction, I have told that as Mihalits AG wants to set up a joint venture in Ukraine with a Ukranian company, seems obvious that the venture will be subject to Ukranian law. I can't see why we, as a Ukranian firm operating in Ukaine, would go to court in Austria. So we insist on And as a joint venture will be set up in the Ukraine it seens obvious that there shoul be more Ukranian directors on board. Why do you insist on having 4 members? We aren't only interested in making friends; we are also looking to make a profit. I don't think that only your company should have a profit. I'd like to hear your point of view on my argumentation,Kind regards,H."

Additional Messages

Message b146: "As time is running, and of course I've shared my thoughts many times before I won't make any other suggestion. I count on an offer which we will accept on Sunday. Sunday is also the next time when I'm available online. Therefore I think that we only could exchange one last offer.regards" (loading on dimension V = -0.6510; loading on dimension A = 0.0395)

The raters described the deck containing this message for example as: Irritated, unfriendly, unhappy, harsh, direct, threatening, displeased, demanding, reproachful, disappointed, determined, dissatisfied, arrogant, disrespectful, negative, one-sided, unhappy, distressed, or stressed.

Message a96: "Dear Mr Husar,Our minimum for the future revenue is 50 percent. 45 percent is absolutely no option for me.Furthermore I can not change anything according to my last offer. This is my final offer, there will be no consessions.Kind regards" (loading on dimension V = -0.6416; loading on dimension A = 0.0338)

The raters described the deck containing this message for example as: Unfair, negative, serious, strict, unhappy, assertive, dismissive, distant, grouchy, negatively neutral, harsh, determined, or disinclined.

Appendix A.3. Dimensional Pole: Activation

Additional Messages

Message b159: "Hello mr. Husar,I clearly understood your last message. However now I am thinking that you do not take my arguments into account.First the agreed items: We honestly feel that your comment about us showing little cooperative will is an insult! We agreed upon compensating the Ukrainian workers without there is a legal base for it. Furthermore Mihalits is willing to pay half the costs of the workers and using another court of jurisdiction than our own, trustwurty, court.And above all, we agreed to set up a long term cooperation with the 8 year contract. This all seems very cooperative, I am sure you agree. Therefore I urge you to not comment in that manner again! Keep in mind that there are several others that are willing to work with us, but on the other side there are few companies that are looking for such a business in Ukraine.Taken all this into account I have to ask you kindly to accept the offer of 3 board members of Mihalits in the new joint venture. I've given several arguments in previous mails. To show even more cooperative will from our side I can offer you a honest 50/50 deal regarding sharing the future revenues. No one will gain more than the other, we've agreed to split the costs of this joint venture and now we propose to split the future revenues as well. In our opinion we are taking a big step by committing ourselves to this. Especially taking the forementioned billions bail out Ukraine received in 2009. We truly believe that we've shown a more than average cooperative will so we expect you to sign the secrecy clause as well. Furthermore it is your turn to show a cooperative will and that you are willing to take a small step in our direction in order to close this deal. We are very confident that the gap between us will be closed and that there will be a prosperous and florishing new joint venture in the nearby future!Looking forward to hear from you soon mr. Husar.Kind regards,Mr. Koller." (loading on dimension A = 0.5903; loading on dimension V = -0.1801)

The raters described the deck containing this message for example as: Disregarding suggestions, worried, wrathful, formal, neutral, without feelings, focused, determined, threatened, aggressive, mistrustful, suspicious, insecure, ignorant, contemptuous, force of cooperation, pressure for success, dissatisfied, suggestions for improvement, willing to do something, complicated matters, discerning but polite, reprehensive, extremely craving cooperation, too affectionate, strong words, feels being misunderstood, perseveringly uncompromising and annoyed, or demandingly accommodating.

Message a30: " Dear mr Husar, The reason we need the secrecy clause is because we want to be sure we will not lose our investments. I am very sorry my emotions took over. Of course not trusting you would be a very bad reason to ask for the clause. If there was not any trust left, we could better stop working together. I am willing to give it another try and I think when you are a trust worth company and you are not wanting to sell or share the technology there is no reason not to agree on the secrecy clause. I understand you have to do huge investments and take risks as well. I am also willing to give in on the future revenue. 50% for both companies is the best I can offer. In addition I am still wanting to lower the costs of the workers to 10 percent. I think this will be a fair deal for both of us. As I told you in the beginning of the negotiation the joint venture has to work for both parties.Kind regards, K. Koller" (loading on dimension A = 0.4870; loading on dimension V = 0.0435)

The raters described the deck containing this message for example as: Dissatisfied but expecting improvements, conditional affirmation, caring about cooperation, misunderstandings, influencing, somewhat negative, skepticism but positive, few emotions, justificatory, distant and official, neutrally nice, neutrally negative, fairness and justice, apologizing, neutrally positive, or emotionally arrogant.

Message a139: "Dear mr Husar,We appreciate the fact that you came up with a counter offer. It is normal that the receiver of an offer has remarks or does not agree with the offer, however, we were surprised by your negative and almost hostile reaction. Things were blown out of proportion and were put under a negative light. It is our intention to have a pleasant cooperation with you and we will do our best to make these intentions a reality. We are sorry that you did not agree with the offer and we appreciate your effort to come up with acounter offer, but, unfortunately we don’t agree with it. We do not feel like we are treated as equal partners, this regarding the offer but also things that were stated in the last e-mail. First of all, the comment about Mihalist will be “done” while Mihalist can start where it now, if the projected revenues are not achieved. If the offer we gave you makes it impossible to pay off your investments, we can always reconsider, but we would like a more objective argument other than Mihalist will be “done”.But then again, we still want to cooperate, however 20% of future revenue is unacceptable. First of all we feel that we have to be compensated for coming up with a new technology. Remember that we are bringing the most promising innovation in airline engine design in recent history You will be a part of it off course but the we came up with the whole idea and design. We are aware that you have to build plants and that you have other costs, but do not forget that we also have to make big investments into this joint venture. We are dealing with the same risks you are dealing with. Also, if we take investments made in the pasttogether with the investment we will made, plus the simple fact that we came up with the entire technology is it logical that we get more than 20%. We still feel that we that wedeserve 55% of the revenue. As to the amount of board members, just one single member from Mihalist is also un acceptable. We are fully aware that you will have to assure agility, adaptability and functionality of the future company and that this will be done un Ukrain, but please understand you would also benefit from our expertise in the board, as we bring experience of dealing with handling big joint ventures. With more members in the board, we can guarantee a smooth process for this entire venture. We do not understand why don’t want to sign a secrecy clause, the fact that we want you to sign one is not to disrespect you. We just need to make sure (on paper) that the technology we came up with is used only for this venture. This secrecy clause will protect both parties. The fact that you don’t want to sign a secrecy clause, makes me wonder about how serious you are taking this venture. Singing a contract that ensure that the combustion chamber is only used to benefit this venture is not unreasonable. If you sign this secrecy clause we are willing to lower our board members to two. By showing this flexibility, we hope that you see that we really take you serious and that we do see you as equal future partners. In the last offer I proposed a contract of 6 years and I also stated that we can always sign a new contract, but apparently you only took the first part into consideration andyou blew this out of proportion by stating that we might be using you as a “puppet”.We can understand that you don’t agree with the proposal but we would appreciate a more objective argument. We strongly believe in the future success of the project, if we didn’t we would have invented Blue Star or made attempts to start a joint venture. The fact that we offered 6 years was to ensure that we act fast to finish the development of the engine, star production and so we can have a competitive advantage on the market. Again this regards an initial contract, after reconsidering are willing to sign an 8 year contract. The fact that you wants us to pay the workers hired for this joint venture does not make sense if you only want us to get 20% of all revenues. These employees are Ukrainian employees, so they have to be paid by their Ukrainian employers. We are willing to help you with this, to show you our appreciation but then you must remember that we would need to receive more than 20% of the revenue. You consider the 55% of revenues, we will pay 50% of the wages. We do accept your offer to compensate the workers with 10%.As for why we cannot have the court of jurisdiction in Austria is not clear to me, strategic nonsenseis not an argument, I'm sorry. We do not intend to play any tricks or tactical manoeuvres on you during this cooperation, however we do need some sort legal option which the Ukrainian court does not provide. There is evidence that foreign companies have legal difficulties in Ukraine due the jurisdiction, and this we cannot risk. The reason why we suggest the Austrian court is that, the corporate law, is known to be very comprehensive towards these types of venues. Corporate law in the Ukraine is still very new. This will be mutually beneficial. I am confident that you will find this counter offer very reasonable. Again we intend to have apleasant cooperation from start to finish. I will be waiting for your acceptance so we can get things started. Kind Regards,Mr Koller" (loading on dimension A = 0.4161; loading on dimension V = -0.0295)

The raters described the deck containing this message for example as: Not being realistic, very confused, set-back, astonished, confused, offers and discussions, hope for cooperation, offended, attacked, dominant, somewhat negative, skeptical but mostly positive, justificatory, informative, negatively neutral, confident, arrogant, offending, sanguine, taking initiative, or worry.

Appendix A.4. Dimensional Pole: Deactivation

Additional Messages

Message c35: "Dear Mrs. Koller,I accept your offer.Regards,Mrs. Husar" (loading on dimension A = -0.5086; loading on dimension V = -0.0287)

The raters described the deck containing this message for example as: Emotionally neutral, factual, carefree, short, direct, not stressed, no emotions, neither positive nor negative emotions, very neutral, rational, without any emotions, or superficial.

Message c89: “dear husarglad we r half way through.....now that we hv 4 issues left to discuss, allow me to propose the following: […]” (loading on dimension A = -0.5009; loading on dimension V = -0.0768)

The raters described the deck containing this message for example as: Short, neutrally positive, carefree, informal, direct, tranquil, neutral, formal, very neutral, distant, rational, satisfied, or controlled.

Appendix A.5. Dimensional Pole: Activated Pleasure

Shortened Messages

Message c109: “ Hallo Dear Koller,I am so happy we reaching already an agreement.As far as I understood you cannot go down to 45 % and at the same time you agree to have 2 Mihalits directors in board.I can understandyou , becauseboth of us negotiating on behalf of our Companies andhave some hard constraint. If you really agree to have 2 directors on board and Metallurg to have 3 directors on board we agree to have equal share of future revenue. It means 50-50. Because other way we can not propose you this two issues at the same time , I means we cannot offer you to have 3 directors and giving at the same time 50 % revenue.I am really very thankful that you were answering backwith somecompromises to my concessionsand we are reaching finally a consensus. I am sending you last time my offer and wish you to accept it:) I am sending you a warm greeting from Vienna and confess that it was a hard negotiation, but at the same time a nice one.I enjoyed it a lot, because I should fight for each issue and you made me to know that each of the issue I got it not for free :) With the best regards”

Additional Messages

Message a122: “Good Morning Mr Koller,Thank you for your understanding in the time limit problem! I hope it won't make you any inconveniences.It glads me to see that we are getting closer and closer an agreement!This time we just have a few things to discuss.We agree on […]. It makes us a bit anxious and uncomfortable that you still want to have a secrecy clause. It feels as if you actually don't want us as your sister company on the long run. We are though willing to give in on this too, if we get something as a compensation. Since you want to stay secret about some things it would really be unpleasant for Metallurg to only have 2 members on board. And as we mentioned before... We believe that Mihalits may suffer from its alien status as a "foreign company". As these local authorities will exert considerable influence over our joint cooperation, it would be advantageous for Mihalits AG to leave communicating with them to us.= Giving you a secrecy clause AND splitting the payment of workers to HalfHalf, we see this as a fair deal.I hope we managed to please you on some issues here and that you understand our further concerns.I also want to give you some nice news. I recieved a phone call the other day from a man involved in this project at the local authorities in Ukraine. They are looking foreward working with both of our companies and they are eager to get started as soon as possible :)!I wish you a good day!Yours sincerlyMrs. Husar" (loading on dimension AP/DD = 0.5643; loading on dimension AD/DP = -0.1078)

The raters described the deck containing this message for example as: Friendly, pleasant anticipation, joyful, positive emotions, optimistic, satisfaction, nice, happy, cooperative, pleased, polite, very positive, very friendly, nice, cheery, energetic, elated, praise, amicable, or relief.

Message c26: "Dear Mrs Husar,Apology excepted! My weekend was great, hope you had an excellent weekend as well.I am really sorry if I made you feel offended by the statements I made. I just wanted to make sure that we come to a good agreement. I really appreciate the thought you put into your last e-mail.To begin with the first issue, where the question of future revenue is discussed I understand you will not accept just 10 percent of the share of future revenues, and you do invest a lot. To meet you in the costs you are having, the need to cover the expenses and paying off you creditors, I will decrease my request for the future share revenue to 75 percent. I am sorry but I cannot accept only 20 percent since we also have many costs to cover, to begin with the large amount of money we already invested in this project.Furthermore, I do agree on that you have good relationships in Ukraine and we both can make good use of these relationships. But I do think that Germany is great location to be situated in and we will meet halfway on this in starting the joint venture in both another country than we are already situated in. Germany is also centered in Europe, which means good accessibility for both our relations, and for potential relations. Concerning the issue that affects the members of board directors, you have good arguments in leaving the communications with the local authorities in Ukraine up to you. That is why I will agree to having 2 directors in board on behalf of Mihalits AG. I apologies for not explaining the content of the secrecy clause in my first e-mail. I was not aware of the little information you received on this subject, and it was wrong of me to assume that you did. I very much appreciate it that we came to an agreement on this. Finally, we of course are willing to establish a long lasting relationship with the expectation of future success of our products. I do agree that it is better for the cooperation to increase the duration of the contract. On the other hand, if the cooperation still is a great success after, for example 6 years, a contract extension is also possible. That is why I suggest a contract duration for 6 years at the moment.I really hope we come to an agreement on these topics discussed in this e-mail, so we can go forward to the rest of the issues. I actually do think we should set a deadline for the agreement because there is not much time left, how about the 27th of November? I hope it is possible for you to be a little sooner in responding, of course I will try my best also.Kind regards,Mrs Koller" (loading on dimension AP/DD = 0.5432; loading on dimension AD/DP = -0.0893)

The raters described the deck containing this message for example as: Positive, caring, very happy and glad, friendly, hopeful, cordial, polite, solution oriented, very friendly and sympathetic, close, nice, trusting, very polite, constructive, or touched.

Appendix A.6. Dimensional Pole: Deactivated Displeasure

Additional Messages

Message b144: "No problem, as said before - i currently do not believe in a joint venture of our companies, therefore this delay is no problem for us. When you make a good offer to us we will reenter the negotiations, but only when receiving a real good offer.regards" (loading on dimension AP/DD = -0.5115; loading on dimension AD/DP = 0.2681)

The raters described the deck containing this message for example as: Neutral and formal, nerved, claiming, determined, dispositive, demand, hardly willing to compromise, displeased, doubt, somewhat impolite, dissatisfied, negative diplomacy, seems indifferent to negotiation outcome, disrespectful, sometimes arrogant, displeased, or unmotivated.

Message a130:"No, I'm sorry. This offer is as far as we can go. It is eather this or nothing at the moment.We hope you willing to agree on this?" (loading on dimension AP/DD = -0.4841; loading on dimension AD/DP = 0.1497)

The raters described the deck containing this message for example as: Strict, serious, almost no emotions, cool, influential, neutral, dismissive, nerved, high distance, very official, neutral wording, factual, defensively, dislikable, uninterested, mix of neutral and negative emotions, sober/dry, or unconcerned.

Appendix A.7. Dimensional Pole: Activated Displeasure

Shortened Messages

Message b72: "Unfortunetelly i showed you my minimum constraints and you tried to take advantage out of it. I cant make any more concessions because its minimum. You tried to cheat me with wrong numbers of yours (your aspiration level not minimum) and you really think i am willing to deal with that?Dear Mr.

Koller!The hard points are stil share of future revenue (50:50 ist definitely fair, your technology our plants and production), you receive the majority of board and i recive the secrecy clause. Thats also fair and for both within our contraints. Take it, or reject. I cant make more concessions and want too.Greetings Mr. Husar!"

Message a171: " Mr. Koller, First you insult me with a totally absurd and ungrounded offer and then you threaten to leave the table.It is me who is feeling you are not serious about making this deal. I'm also sorry if I did not state it very clearly in my counteroffer. I was hoping you to realize this, not to take the blame myself.Please if you would even consider grounding your first offer? For example, why you have offered us only 10% of the money? What part of 1-9 deal sounds serious? Even if we received 60% of the winnings, after our own investments we might barely get the required profit from this deal! And yes we are the ones making the major investments here, not Mihalits.Same goes for every point under discussion. You have given me offer that goes so much under my preferences that I cannot even consider it an offer.I am very confused by your actions. How do you suppose me realize anything about your preferences, mind set and reservation levels from such an starting offer.At least I was ready to give some of this information. It would be a total loss for both of us if this negotiation ends before it even began. Give me a grounded starting offer. Give me any reason behind the numbers and I see there is a reason to negotiate.Yours,Mr. Husar"

Additional Messages

Message b140: "Dear Mrs. Koller,as I see, that you do not accept our final offer, an also with keeping in mind, that time is running out, i lost the hope of signing our joint venture. Mihalits is a good option for us, but of course not the only good option! Because you have not moved in our direction to make us an equal partner all further agreed issues are invalid at this moment. So see our new offer - of course this is a worse offer for you - but that is not our problem - you had the time to make cooperative negotiations with us, but you did not take this chance. regards" (loading on dimension AD/DP = 0.8020; loading on dimension AP/DD = -0.0502)

The raters described the deck containing this message for example as: Nerved, angry, repellent, command, direct, consequent, threatening, mad, annoyed, aggressive, very negative, refusal, offending, attacking, hopeless, reproachful, unfriendly, direct, disappointed, harsh, evil, negative emotions, frustration, very disrespectful, very angry, demanding, stressed, under or pressure.

Message a217: "Dear Mrs. Koller, After reading your last message a couple of times I am still wondering about your style of negotiation. On the one hand you are reminding me that we are "negotiation as adults" (strange but okay) and on the other hand you are really crossing the line with statements like:"As nice as you make it seem for us","a bid childish","bid offended that you are not willing to see" and so on. Telling me that I accused you is just far above everything. Maybe it is due to the cultural differences or our level of English, but I never accused you in any situation and my intentions were more than clear and honest! If you feel accused I am very sorry for that!Of course, misunderstanding can be one of the cons when negotiating over this platform but the good thing with this tool is that you can refer at every moment to the sent messages. Check the history but I never agreed on a security clause. I said it is a normal thing but we want to know what is in it. As far as I can tell right now, we should build the new plants, you should gain most of the future revenue and in counter draw we should sign a security clause. That's really not what we had in mind! We want to be equal partners and want as well a fair part of the wins and both of us should carry a fair part of the costs. […] I want to send a final offer. Of course we still can talk about details but more or less this is all what I can do for our Joint Venture. If we want to make it realistic that we are realising a JV the final offer is maybe the only possible contract to make it happened.I am accepting your conceaveabilities in terms of court of jurisdiction I must say I don't understand the fears of the Ukrainian law but anyway. Due to the fact that you are agreeing on the duration of contract we stick to […]. Same with the very useful and logical share of the directors. Comming to the new aspects of our contract. As you want to have a compensation of workers of 12% and we want to have just 8%. I would go for the middle of%. In return I want that you are taking over the payment of workers hired for the JV. Giving this big concession I really want to know what is exactly in the secrecy clause. If it is acceptable for as and just than we are willing to sign the clause. Knowing that we both whant to reach an agreement we really have to add some flexibility and should find a compromise. To due so I am offering you a share of 50%. Please think about my last offer and take into account that there is no scope left. It is up to you to agree on the contract. I hope that you are recognising the big concessions that I made to make our liaison happened and you will decide positive for us.Very kind regard'sMr. Husar" (loading on dimension AD/DP = 0.6815; loading on dimension AP/DD = -0.0820)

The raters described the deck containing this message for example as: Offending, strong negative pressure, coercion, serious, strict, nervous, unfriendly, aggressive, threatening, dismissive, anger, harsh words, arrogant, annoyed, fury, defensively, emotional, anxious, or dismissive.

Appendix A.8. Dimensional Pole: Dectivated Pleasure

Additional Messages

Message a169: “Hello Mr. Koller.You seem like a reasonable man and I can clearly see your enthusiasm. I am very happy for your offer and I'm also looking forward to cooperate with you. I also like your your way of justifying all your points in the deal.As a kind response to yours, here is my my suggestion:-Duration of contract 12 years. We feel you are not serious about our company by suggesting only 5 years contract.-5% of revenue for your company since we are the ones who have to put investments as a producer.-1 director from your company to the board. We are capable, just give us the blueprints.-Court of jurisdiction Ukraine since the production will be done in Ukraine... surpriced?-No secrecy clause. We don't even know if you have what you claim. A clearly superior design?-Payment for the workers hired by the joint venture comes from your company. It's only fair that you put some resources into this project as well.-8% additional compensation for ukrainian workers since they are really good in their work. Of course if Mihalits wan't to pay them more for them we don't really mind.Waiting to hear from you again and really looking forward for even more enthusiastic offers.(ps. When you want to start the negotiations. Here is something to concider for some real cooperation: You can notice my preferences from the order I presented my attributes.)Kindest regards,Mr. Husar” (loading on dimension AD/DP = -0.5848; loading on dimension AP/DD = 0.0156)

The raters described the deck containing this message for example as: Friendly, content, agreeing, gratitude, serene, positive, open, optimism, satisfaction, considerate, nice, relaxed, cooperative, accommodating, or at ease.

Message b186: “Dear Mr./Mrs. H. Husar,It is a pleasure to start the negotiations about our combined development on the Blue Star-project. We have two weeks to complete the negotiation session and I certainly hope we will both benefit of it for the sake of our companies and the region of Lviv Oblast. Of course I hope that everything is clear about the upcoming two weeks. If not, I am available for questions. I will try to answer them as fast as I can.I am looking forward to your reply.Kind regards,Mr. K. KollerMihalits AG” (loading on dimension AD/DP = -0.5071; loading on dimension AP/DD = -0.0418)

The raters described the deck containing this message for example as: Serene, friendly, hopeful, content, interested, optimistic, satisfied, or accommodating.

Appendix B

This Appendix includes the complete outputs of the repeated measures ANOVAs referred to in chapter E.1.

Appendix B.1. Repeated Measures ANOVA for Valence

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,408	18,575[a]	2,000	54,000	,000	,408	37,149	1,000
	Wilks' Lambda	,592	18,575[a]	2,000	54,000	,000	,408	37,149	1,000
	Hotelling's Trace	,688	18,575[a]	2,000	54,000	,000	,408	37,149	1,000
	Roy's Largest Root	,688	18,575[a]	2,000	54,000	,000	,408	37,149	1,000
Phase * Agr	Pillai's Trace	,223	7,738[a]	2,000	54,000	,001	,223	15,476	,938
	Wilks' Lambda	,777	7,738[a]	2,000	54,000	,001	,223	15,476	,938
	Hotelling's Trace	,287	7,738[a]	2,000	54,000	,001	,223	15,476	,938
	Roy's Largest Root	,287	7,738[a]	2,000	54,000	,001	,223	15,476	,938

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + Agr
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,985	,843	2	,656	,985	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + Agr
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,983	2	,492	18,993	,000	,257	37,986	1,000
	Greenhouse-Geisser	,983	1,970	,499	18,993	,000	,257	37,407	1,000
	Huynh-Feldt	,983	2,000	,492	18,993	,000	,257	37,986	1,000
	Lower-bound	,983	1,000	,983	18,993	,000	,257	18,993	,990
Phase * Agr	Sphericity Assumed	,414	2	,207	7,999	,001	,127	15,998	,952
	Greenhouse-Geisser	,414	1,970	,210	7,999	,001	,127	15,754	,949
	Huynh-Feldt	,414	2,000	,207	7,999	,001	,127	15,998	,952
	Lower-bound	,414	1,000	,414	7,999	,007	,127	7,999	,793
Error(Phase)	Sphericity Assumed	2,848	110	,026					
	Greenhouse-Geisser	2,848	108,323	,026					
	Huynh-Feldt	2,848	110,000	,026					
	Lower-bound	2,848	55,000	,052					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	1,718	1	1,718	35,569	,000	,393	35,569	1,000
	Level 2 vs. Level 3	,050	1	,050	1,019	,317	,018	1,019	,168
Phase * Agr	Level 1 vs. Level 2	,022	1	,022	,458	,502	,008	,458	,102
	Level 2 vs. Level 3	,726	1	,726	14,865	,000	,213	14,865	,966
Error(Phase)	Level 1 vs. Level 2	2,656	55	,048					
	Level 2 vs. Level 3	2,685	55	,049					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,018	1	,018	1,293	,260	,023	1,293	,201
Agr	,271	1	,271	19,746	,000	,264	19,746	,992
Error	,754	55	,014					

a. Computed using alpha = ,05

Appendix B.2. Repeated Measures ANOVA for Activation

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,132	4,089[a]	2,000	54,000	,022	,132	8,178	,702
	Wilks' Lambda	,868	4,089[a]	2,000	54,000	,022	,132	8,178	,702
	Hotelling's Trace	,151	4,089[a]	2,000	54,000	,022	,132	8,178	,702
	Roy's Largest Root	,151	4,089[a]	2,000	54,000	,022	,132	8,178	,702
Phase * Agr	Pillai's Trace	,115	3,520[a]	2,000	54,000	,037	,115	7,040	,632
	Wilks' Lambda	,885	3,520[a]	2,000	54,000	,037	,115	7,040	,632
	Hotelling's Trace	,130	3,520[a]	2,000	54,000	,037	,115	7,040	,632
	Roy's Largest Root	,130	3,520[a]	2,000	54,000	,037	,115	7,040	,632

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + Agr
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,962	2,118	2	,347	,963	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + Agr
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,160	2	,080	3,826	,025	,065	7,652	,684
	Greenhouse-Geisser	,160	1,926	,083	3,826	,026	,065	7,369	,672
	Huynh-Feldt	,160	2,000	,080	3,826	,025	,065	7,652	,684
	Lower-bound	,160	1,000	,160	3,826	,056	,065	3,826	,485
Phase * Agr	Sphericity Assumed	,146	2	,073	3,503	,034	,060	7,005	,643
	Greenhouse-Geisser	,146	1,926	,076	3,503	,035	,060	6,746	,631
	Huynh-Feldt	,146	2,000	,073	3,503	,034	,060	7,005	,643
	Lower-bound	,146	1,000	,146	3,503	,067	,060	3,503	,452
Error(Phase)	Sphericity Assumed	2,298	110	,021					
	Greenhouse-Geisser	2,298	105,926	,022					
	Huynh-Feldt	2,298	110,000	,021					
	Lower-bound	2,298	55,000	,042					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,190	1	,190	5,663	,021	,093	5,663	,647
	Level 2 vs. Level 3	,009	1	,009	,189	,665	,003	,189	,071
Phase * Agr	Level 1 vs. Level 2	,127	1	,127	3,792	,057	,065	3,792	,481
	Level 2 vs. Level 3	,030	1	,030	,652	,423	,012	,652	,125
Error(Phase)	Level 1 vs. Level 2	1,848	55	,034					
	Level 2 vs. Level 3	2,542	55	,046					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,004	1	,004	,488	,488	,009	,488	,106
Agr	,010	1	,010	1,144	,289	,020	1,144	,183
Error	,480	55	,009					

a. Computed using alpha = ,05

Appendix B.3. Repeated Measures ANOVA for AP/DD

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,146	4,612[a]	2,000	54,000	,014	,146	9,223	,757
	Wilks' Lambda	,854	4,612[a]	2,000	54,000	,014	,146	9,223	,757
	Hotelling's Trace	,171	4,612[a]	2,000	54,000	,014	,146	9,223	,757
	Roy's Largest Root	,171	4,612[a]	2,000	54,000	,014	,146	9,223	,757
Phase * Agr	Pillai's Trace	,122	3,735[a]	2,000	54,000	,030	,122	7,469	,660
	Wilks' Lambda	,878	3,735[a]	2,000	54,000	,030	,122	7,469	,660
	Hotelling's Trace	,138	3,735[a]	2,000	54,000	,030	,122	7,469	,660
	Roy's Largest Root	,138	3,735[a]	2,000	54,000	,030	,122	7,469	,660

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + Agr
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,943	3,186	2	,203	,946	,996	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + Agr
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,187	2	,094	4,471	,014	,075	8,943	,756
	Greenhouse-Geisser	,187	1,892	,099	4,471	,015	,075	8,458	,738
	Huynh-Feldt	,187	1,993	,094	4,471	,014	,075	8,910	,755
	Lower-bound	,187	1,000	,187	4,471	,039	,075	4,471	,547
Phase * Agr	Sphericity Assumed	,122	2	,061	2,903	,059	,050	5,807	,557
	Greenhouse-Geisser	,122	1,892	,064	2,903	,062	,050	5,492	,541
	Huynh-Feldt	,122	1,993	,061	2,903	,059	,050	5,785	,556
	Lower-bound	,122	1,000	,122	2,903	,094	,050	2,903	,388
Error(Phase)	Sphericity Assumed	2,303	110	,021					
	Greenhouse-Geisser	2,303	104,039	,022					
	Huynh-Feldt	2,303	109,591	,021					
	Lower-bound	2,303	55,000	,042					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,366	1	,366	9,311	,004	,145	9,311	,850
	Level 2 vs. Level 3	,050	1	,050	1,451	,233	,026	1,451	,220
Phase * Agr	Level 1 vs. Level 2	,129	1	,129	3,288	,075	,056	3,288	,429
	Level 2 vs. Level 3	,223	1	,223	6,412	,014	,104	6,412	,701
Error(Phase)	Level 1 vs. Level 2	2,164	55	,039					
	Level 2 vs. Level 3	1,911	55	,035					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,002	1	,002	,197	,659	,004	,197	,072
Agr	,085	1	,085	7,790	,007	,124	7,790	,783
Error	,603	55	,011					

a. Computed using alpha = ,05

Appendix B.4. Repeated Measures ANOVA for AD/DP

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,450	22,051[a]	2,000	54,000	,000	,450	44,103	1,000
	Wilks' Lambda	,550	22,051[a]	2,000	54,000	,000	,450	44,103	1,000
	Hotelling's Trace	,817	22,051[a]	2,000	54,000	,000	,450	44,103	1,000
	Roy's Largest Root	,817	22,051[a]	2,000	54,000	,000	,450	44,103	1,000
Phase * Agr	Pillai's Trace	,215	7,398[a]	2,000	54,000	,001	,215	14,795	,928
	Wilks' Lambda	,785	7,398[a]	2,000	54,000	,001	,215	14,795	,928
	Hotelling's Trace	,274	7,398[a]	2,000	54,000	,001	,215	14,795	,928
	Roy's Largest Root	,274	7,398[a]	2,000	54,000	,001	,215	14,795	,928

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + Agr
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,961	2,136	2	,344	,963	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + Agr
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,950	2	,475	18,327	,000	,250	36,655	1,000
	Greenhouse-Geisser	,950	1,925	,493	18,327	,000	,250	35,286	1,000
	Huynh-Feldt	,950	2,000	,475	18,327	,000	,250	36,655	1,000
	Lower-bound	,950	1,000	,950	18,327	,000	,250	18,327	,988
Phase * Agr	Sphericity Assumed	,437	2	,218	8,426	,000	,133	16,852	,961
	Greenhouse-Geisser	,437	1,925	,227	8,426	,000	,133	16,222	,956
	Huynh-Feldt	,437	2,000	,218	8,426	,000	,133	16,852	,961
	Lower-bound	,437	1,000	,437	8,426	,005	,133	8,426	,814
Error(Phase)	Sphericity Assumed	2,850	110	,026					
	Greenhouse-Geisser	2,850	105,892	,027					
	Huynh-Feldt	2,850	110,000	,026					
	Lower-bound	2,850	55,000	,052					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	1,532	1	1,532	35,875	,000	,395	35,875	1,000
	Level 2 vs. Level 3	,009	1	,009	,147	,703	,003	,147	,066
Phase * Agr	Level 1 vs. Level 2	,021	1	,021	,485	,489	,009	,485	,105
	Level 2 vs. Level 3	,529	1	,529	8,772	,005	,138	8,772	,829
Error(Phase)	Level 1 vs. Level 2	2,349	55	,043					
	Level 2 vs. Level 3	3,319	55	,060					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,020	1	,020	1,727	,194	,030	1,727	,252
Agr	,195	1	,195	16,935	,000	,235	16,935	,981
Error	,633	55	,012					

a. Computed using alpha = ,05

Appendix C

This Appendix includes descriptive statistics of successful negotiations as well as failed negotiations with and without decision support, referred to in Chapter E.2.

Appendix C.1. Descriptive Statistics for Successful Negotiations with a DSS

Table C.1

Descriptive Statistics: Data Overview (Successful Negotiations with a DSS)

Affective dimension	Phase	N	Min.	Max.	Mean	Std. dev.	T-test against 0
Valence	All	21	-0.1186	0.2895	0.0501	0.1254	Greater than 0 ($p_{adj.}$=.024)
Activation	All	21	-0.1389	0.2139	-0.0139	0.0898	Not sig.
Valence	Ph1	21	-0.2993	0.3890	0.1251	0.1745	Greater than 0 ($p_{adj.}$=.006)
Activation	Ph1	21	-0.1904	0.1556	-0.0367	0.1009	Not sig.
Valence	Ph2	21	-0.3626	0.2780	-0.0383	0.1777	Not sig.
Activation	Ph2	21	-0.1964	0.3254	-0.0272	0.1279	Not sig.
Valence	Ph3	21	-0.2333	0.3085	0.0636	0.1602	Greater than 0 ($p_{adj.}$=.042)
Activation	Ph3	21	-0.3153	0.3741	0.0221	0.1815	Not sig.
AP/DD	All	21	-0.1383	0.1782	0.0250	0.0998	Not sig.
AD/DP	All	21	-0.2388	0.2295	-0.0456	0.1176	Less than 0 ($p_{adj.}$=.025)
AP/DD	Ph1	21	-0.2419	0.2790	0.0609	0.1283	Greater than 0 ($p_{adj.}$=.040)
AD/DP	Ph1	21	-0.3317	0.2257	-0.1153	0.1555	Less than 0 ($p_{adj.}$=.003)
AP/DD	Ph2	21	-0.2887	0.1428	-0.0461	0.1218	Less than 0 (p=.049)
AD/DP	Ph2	21	-0.2491	0.3802	0.0085	0.1819	Not sig.
AP/DD	Ph3	21	-0.2580	0.2544	0.0602	0.1493	Greater than 0 ($p_{adj.}$=.040)
AD/DP	Ph3	21	-0.2819	0.4279	-0.0302	0.1906	Not sig.

Appendix C.2. Descriptive Statistics for Successful Negotiations without a DSS

Table C.2

Descriptive Statistics: Data Overview (Successful Negotiations without a DSS)

Affective dimension	Phase	N	Min.	Max.	Mean	Std. dev.	T-test against 0
Valence	All	17	-0.1715	0.2604	0.0597	0.1150	Greater than 0 ($p_{adj.}$=.032)
Activation	All	17	-0.1971	0.1546	0.0063	0.0950	Not sig.
Valence	Ph1	17	-0.1204	0.3371	0.1600	0.1409	Greater than 0 ($p_{adj.}$=.000)
Activation	Ph1	17	-0.1360	0.1695	0.0262	0.1035	Not sig.
Valence	Ph2	17	-0.3633	0.2339	-0.0964	0.2040	Less than 0 (p=.035)
Activation	Ph2	17	-0.2682	0.2503	0.0394	0.1312	Not sig.
Valence	Ph3	17	-0.5602	0.4395	0.1154	0.2390	Greater than 0 ($p_{adj.}$=.032)
Activation	Ph3	17	-0.3871	0.1812	-0.0466	0.1772	Not sig.
AP/DD	All	17	-0.1292	0.2241	0.0463	0.1108	Greater than 0 ($p_{adj.}$=.044)
AD/DP	All	17	-0.2103	0.1548	-0.0380	0.0999	Not sig.
AP/DD	Ph1	17	-0.1814	0.3339	0.1311	0.1305	Greater than 0 ($p_{adj.}$=.001)
AD/DP	Ph1	17	-0.3314	0.1503	-0.0949	0.1167	Less than 0 ($p_{adj.}$=.004)
AP/DD	Ph2	17	-0.3046	0.2633	-0.0398	0.1593	Not sig.
AD/DP	Ph2	17	-0.2806	0.3950	0.0957	0.1832	Greater than 0 (p=.023)
AP/DD	Ph3	17	-0.4541	0.4310	0.0476	0.2334	Not sig.
AD/DP	Ph3	17	-0.4214	0.3382	-0.1146	0.1847	Less than 0 ($p_{adj.}$=.011)

Appendix C.3. Descriptive Statistics for Failed Negotiations with a DSS

Table C.3

Descriptive Statistics: Data Overview (Failed Negotiations with a DSS)

Affective dimension	Phase	N	Min.	Max.	Mean	Std. dev.	T-test against 0
Valence	All	11	-0.2598	0.0792	-0.1009	0.1125	Less than 0 ($p_{adj.}$=.003)
Activation	All	11	-0.0978	0.2793	0.0311	0.1136	Not sig.
Valence	Ph1	11	-0.2085	0.2902	0.0267	0.1658	Not sig.
Activation	Ph1	11	-0.2562	0.0217	-0.1003	0.1034	Less than 0 (p=.005)
Valence	Ph2	11	-0.3287	0.0238	-0.1257	0.1085	Less than 0 ($p_{adj.}$=.003)
Activation	Ph2	11	-0.2393	0.3354	0.0390	0.1934	Not sig.
Valence	Ph3	11	-0.5271	0.0199	-0.2038	0.1963	Less than 0 ($p_{adj.}$=.003)
Activation	Ph3	11	-0.0756	0.4809	0.1547	0.1704	Greater than 0 (p=.007)
AP/DD	All	11	-0.2513	0.1487	-0.0481	0.1122	Less than 0 (p=.040)
AD/DP	All	11	-0.0746	0.2477	0.0941	0.1139	Greater than 0 ($p_{adj.}$=.013)
AP/DD	Ph1	11	-0.3291	0.1868	-0.0535	0.1569	Not sig.
AD/DP	Ph1	11	-0.3273	0.0538	-0.0890	0.1165	Less than 0 (p=.015)
AP/DD	Ph2	11	-0.3169	0.1090	-0.0596	0.1324	Not sig.
AD/DP	Ph2	11	-0.1388	0.3950	0.1173	0.1780	Greater than 0 ($p_{adj.}$=.027)
AP/DD	Ph3	11	-0.3200	0.3584	-0.0312	0.1786	Not sig.
AD/DP	Ph3	11	-0.0398	0.4310	0.2539	0.1888	Greater than 0 ($p_{adj.}$=.002)

Appendix C.4. Descriptive Statistics for Failed Negotiations without a DSS

Table C.4

Descriptive Statistics: Data Overview (Failed Negotiations without a DSS)

Affective dimension	Phase	N	Min.	Max.	Mean	Std. dev.	T-test against 0
Valence	All	8	-0.2144	0.0706	-0.0793	0.1187	Less than 0 ($p_{adj.}$=.036)
Activation	All	8	-0.1341	0.1226	0.0124	0.0759	Not sig.
Valence	Ph1	8	-0.1477	0.2676	0.0737	0.1603	Not sig.
Activation	Ph1	8	-0.1496	0.1239	-0.0130	0.1178	Not sig.
Valence	Ph2	8	-0.2853	0.1210	-0.1045	0.1395	Less than 0 ($p_{adj.}$=.036)
Activation	Ph2	8	-0.1082	0.3109	0.0600	0.1505	Not sig.
Valence	Ph3	8	-0.4295	0.0870	-0.2070	0.2019	Less than 0 ($p_{adj.}$=.035)
Activation	Ph3	8	-0.2895	0.2416	-0.0099	0.2025	Not sig.
AP/DD	All	8	-0.2463	0.0817	-0.0468	0.1047	Not sig.
AD/DP	All	8	-0.0622	0.2282	0.0649	0.0944	Greater than 0 ($p_{adj.}$=.054)
AP/DD	Ph1	8	-0.1824	0.2767	0.0427	0.1843	Not sig.
AD/DP	Ph1	8	-0.1764	0.0567	-0.0611	0.0752	Less than 0 (p=.028)
AP/DD	Ph2	8	-0.2116	0.0886	-0.0308	0.1168	Not sig.
AD/DP	Ph2	8	-0.1621	0.3662	0.1162	0.1689	Greater than 0 ($p_{adj.}$=.054)
AP/DD	Ph3	8	-0.3716	0.1558	-0.1524	0.1900	Less than 0 (p=.029)
AD/DP	Ph3	8	-0.2283	0.4658	0.1398	0.2143	Greater than 0 ($p_{adj.}$=.054)

Appendix D

This Appendix includes the complete outputs of the repeated measures ANOVAs referred to in chapter E.2.

Appendix D.1. Repeated Measures ANOVA for Valence (Successful Negotiations)

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,485	16,495[a]	2,000	35,000	,000	,485	32,991	,999
	Wilks' Lambda	,515	16,495[a]	2,000	35,000	,000	,485	32,991	,999
	Hotelling's Trace	,943	16,495[a]	2,000	35,000	,000	,485	32,991	,999
	Roy's Largest Root	,943	16,495[a]	2,000	35,000	,000	,485	32,991	,999
Phase * DSS	Pillai's Trace	,068	1,268[a]	2,000	35,000	,294	,068	2,537	,257
	Wilks' Lambda	,932	1,268[a]	2,000	35,000	,294	,068	2,537	,257
	Hotelling's Trace	,072	1,268[a]	2,000	35,000	,294	,068	2,537	,257
	Roy's Largest Root	,072	1,268[a]	2,000	35,000	,294	,068	2,537	,257

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + DSS
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,985	,546	2	,761	,985	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + DSS
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,895	2	,448	15,552	,000	,302	31,104	,999
	Greenhouse-Geisser	,895	1,970	,455	15,552	,000	,302	30,630	,999
	Huynh-Feldt	,895	2,000	,448	15,552	,000	,302	31,104	,999
	Lower-bound	,895	1,000	,895	15,552	,000	,302	15,552	,970
Phase * DSS	Sphericity Assumed	,066	2	,033	1,144	,324	,031	2,288	,244
	Greenhouse-Geisser	,066	1,970	,033	1,144	,324	,031	2,253	,242
	Huynh-Feldt	,066	2,000	,033	1,144	,324	,031	2,288	,244
	Lower-bound	,066	1,000	,066	1,144	,292	,031	1,144	,180
Error(Phase)	Sphericity Assumed	2,072	72	,029					
	Greenhouse-Geisser	2,072	70,902	,029					
	Huynh-Feldt	2,072	72,000	,029					
	Lower-bound	2,072	36,000	,058					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	1,656	1	1,656	29,060	,000	,447	29,060	,999
	Level 2 vs. Level 3	,924	1	,924	17,881	,000	,332	17,881	,984
Phase * DSS	Level 1 vs. Level 2	,081	1	,081	1,427	,240	,038	1,427	,214
	Level 2 vs. Level 3	,114	1	,114	2,197	,147	,058	2,197	,303
Error(Phase)	Level 1 vs. Level 2	2,051	36	,057					
	Level 2 vs. Level 3	1,860	36	,052					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,113	1	,113	7,752	,008	,177	7,752	,773
DSS	,001	1	,001	,059	,810	,002	,059	,056
Error	,526	36	,015					

a. Computed using alpha = ,05

Appendix D.2. Repeated Measures ANOVA for Activation (Successful Negotiations)

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,010	,175[a]	2,000	35,000	,840	,010	,350	,075
	Wilks' Lambda	,990	,175[a]	2,000	35,000	,840	,010	,350	,075
	Hotelling's Trace	,010	,175[a]	2,000	35,000	,840	,010	,350	,075
	Roy's Largest Root	,010	,175[a]	2,000	35,000	,840	,010	,350	,075
Phase * DSS	Pillai's Trace	,134	2,706[a]	2,000	35,000	,081	,134	5,411	,501
	Wilks' Lambda	,866	2,706[a]	2,000	35,000	,081	,134	5,411	,501
	Hotelling's Trace	,155	2,706[a]	2,000	35,000	,081	,134	5,411	,501
	Roy's Largest Root	,155	2,706[a]	2,000	35,000	,081	,134	5,411	,501

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + DSS
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,966	1,210	2	,546	,967	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + DSS
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,006	2	,003	,190	,827	,005	,380	,079
	Greenhouse-Geisser	,006	1,934	,003	,190	,820	,005	,368	,078
	Huynh-Feldt	,006	2,000	,003	,190	,827	,005	,380	,079
	Lower-bound	,006	1,000	,006	,190	,665	,005	,190	,071
Phase * DSS	Sphericity Assumed	,111	2	,056	3,283	,043	,084	6,567	,606
	Greenhouse-Geisser	,111	1,934	,058	3,283	,045	,084	6,351	,596
	Huynh-Feldt	,111	2,000	,056	3,283	,043	,084	6,567	,606
	Lower-bound	,111	1,000	,111	3,283	,078	,084	3,283	,422
Error(Phase)	Sphericity Assumed	1,222	72	,017					
	Greenhouse-Geisser	1,222	69,633	,018					
	Huynh-Feldt	1,222	72,000	,017					
	Lower-bound	1,222	36,000	,034					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,005	1	,005	,173	,680	,005	,173	,069
	Level 2 vs. Level 3	,013	1	,013	,332	,568	,009	,332	,087
Phase * DSS	Level 1 vs. Level 2	,000	1	,000	,005	,946	,000	,005	,051
	Level 2 vs. Level 3	,172	1	,172	4,491	,041	,111	4,491	,541
Error(Phase)	Level 1 vs. Level 2	1,003	36	,028					
	Level 2 vs. Level 3	1,377	36	,038					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,001	1	,001	,064	,802	,002	,064	,057
DSS	,004	1	,004	,454	,505	,012	,454	,101
Error	,306	36	,008					

a. Computed using alpha = ,05

Appendix D.3. Repeated Measures ANOVA for AP/DD (Successful Negotiations)

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,381	10,784[a]	2,000	35,000	,000	,381	21,567	,984
	Wilks' Lambda	,619	10,784[a]	2,000	35,000	,000	,381	21,567	,984
	Hotelling's Trace	,616	10,784[a]	2,000	35,000	,000	,381	21,567	,984
	Roy's Largest Root	,616	10,784[a]	2,000	35,000	,000	,381	21,567	,984
Phase * DSS	Pillai's Trace	,046	,836[a]	2,000	35,000	,442	,046	1,671	,182
	Wilks' Lambda	,954	,836[a]	2,000	35,000	,442	,046	1,671	,182
	Hotelling's Trace	,048	,836[a]	2,000	35,000	,442	,046	1,671	,182
	Roy's Largest Root	,048	,836[a]	2,000	35,000	,442	,046	1,671	,182

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + DSS
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,981	,665	2	,717	,982	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + DSS
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,381	2	,191	9,570	,000	,210	19,141	,977
	Greenhouse-Geisser	,381	1,963	,194	9,570	,000	,210	18,788	,975
	Huynh-Feldt	,381	2,000	,191	9,570	,000	,210	19,141	,977
	Lower-bound	,381	1,000	,381	9,570	,004	,210	9,570	,853
Phase * DSS	Sphericity Assumed	,035	2	,018	,887	,417	,024	1,773	,197
	Greenhouse-Geisser	,035	1,963	,018	,887	,415	,024	1,740	,196
	Huynh-Feldt	,035	2,000	,018	,887	,417	,024	1,773	,197
	Lower-bound	,035	1,000	,035	,887	,353	,024	,887	,150
Error(Phase)	Sphericity Assumed	1,435	72	,020					
	Greenhouse-Geisser	1,435	70,671	,020					
	Huynh-Feldt	1,435	72,000	,020					
	Lower-bound	1,435	36,000	,040					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,725	1	,725	20,764	,000	,366	20,764	,993
	Level 2 vs. Level 3	,353	1	,353	8,755	,005	,196	8,755	,821
Phase * DSS	Level 1 vs. Level 2	,038	1	,038	1,097	,302	,030	1,097	,175
	Level 2 vs. Level 3	,003	1	,003	,083	,775	,002	,083	,059
Error(Phase)	Level 1 vs. Level 2	1,258	36	,035					
	Level 2 vs. Level 3	1,450	36	,040					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,048	1	,048	4,344	,044	,108	4,344	,527
DSS	,004	1	,004	,390	,536	,011	,390	,093
Error	,396	36	,011					

a. Computed using alpha = ,05

Appendix D.4. Repeated Measures ANOVA for AD/DP (Successful Negotiations)

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,372	10,371[a]	2,000	35,000	,000	,372	20,741	,980
	Wilks' Lambda	,628	10,371[a]	2,000	35,000	,000	,372	20,741	,980
	Hotelling's Trace	,593	10,371[a]	2,000	35,000	,000	,372	20,741	,980
	Roy's Largest Root	,593	10,371[a]	2,000	35,000	,000	,372	20,741	,980
Phase * DSS	Pillai's Trace	,134	2,710[a]	2,000	35,000	,080	,134	5,420	,501
	Wilks' Lambda	,866	2,710[a]	2,000	35,000	,080	,134	5,420	,501
	Hotelling's Trace	,155	2,710[a]	2,000	35,000	,080	,134	5,420	,501
	Roy's Largest Root	,155	2,710[a]	2,000	35,000	,080	,134	5,420	,501

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + DSS
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,995	,170	2	,918	,995	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + DSS
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,517	2	,258	9,986	,000	,217	19,973	,981
	Greenhouse-Geisser	,517	1,990	,260	9,986	,000	,217	19,876	,981
	Huynh-Feldt	,517	2,000	,258	9,986	,000	,217	19,973	,981
	Lower-bound	,517	1,000	,517	9,986	,003	,217	9,986	,868
Phase * DSS	Sphericity Assumed	,141	2	,070	2,716	,073	,070	5,432	,521
	Greenhouse-Geisser	,141	1,990	,071	2,716	,073	,070	5,406	,520
	Huynh-Feldt	,141	2,000	,070	2,716	,073	,070	5,432	,521
	Lower-bound	,141	1,000	,141	2,716	,108	,070	2,716	,361
Error(Phase)	Sphericity Assumed	1,864	72	,026					
	Greenhouse-Geisser	1,864	71,653	,026					
	Huynh-Feldt	1,864	72,000	,026					
	Lower-bound	1,864	36,000	,052					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,928	1	,928	18,532	,000	,340	18,532	,987
	Level 2 vs. Level 3	,582	1	,582	11,683	,002	,245	11,683	,914
Phase * DSS	Level 1 vs. Level 2	,042	1	,042	,838	,366	,023	,838	,145
	Level 2 vs. Level 3	,277	1	,277	5,552	,024	,134	5,552	,631
Error(Phase)	Level 1 vs. Level 2	1,804	36	,050					
	Level 2 vs. Level 3	1,794	36	,050					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,066	1	,066	5,421	,026	,131	5,421	,620
DSS	,001	1	,001	,046	,832	,001	,046	,055
Error	,436	36	,012					

a. Computed using alpha = ,05

Appendix D.5. Repeated Measures ANOVA for Valence (Failed Negotiations)

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,612	12,597[a]	2,000	16,000	,001	,612	25,193	,988
	Wilks' Lambda	,388	12,597[a]	2,000	16,000	,001	,612	25,193	,988
	Hotelling's Trace	1,575	12,597[a]	2,000	16,000	,001	,612	25,193	,988
	Roy's Largest Root	1,575	12,597[a]	2,000	16,000	,001	,612	25,193	,988
Phase * DSS	Pillai's Trace	,014	,110[a]	2,000	16,000	,897	,014	,219	,064
	Wilks' Lambda	,986	,110[a]	2,000	16,000	,897	,014	,219	,064
	Hotelling's Trace	,014	,110[a]	2,000	16,000	,897	,014	,219	,064
	Roy's Largest Root	,014	,110[a]	2,000	16,000	,897	,014	,219	,064

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + DSS
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,912	1,474	2	,479	,919	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + DSS
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,622	2	,311	15,034	,000	,469	30,069	,998
	Greenhouse-Geisser	,622	1,838	,339	15,034	,000	,469	27,637	,997
	Huynh-Feldt	,622	2,000	,311	15,034	,000	,469	30,069	,998
	Lower-bound	,622	1,000	,622	15,034	,001	,469	15,034	,955
Phase * DSS	Sphericity Assumed	,006	2	,003	,141	,869	,008	,283	,070
	Greenhouse-Geisser	,006	1,838	,003	,141	,852	,008	,260	,069
	Huynh-Feldt	,006	2,000	,003	,141	,869	,008	,283	,070
	Lower-bound	,006	1,000	,006	,141	,712	,008	,141	,065
Error(Phase)	Sphericity Assumed	,704	34	,021					
	Greenhouse-Geisser	,704	31,250	,023					
	Huynh-Feldt	,704	34,000	,021					
	Lower-bound	,704	17,000	,041					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,506	1	,506	16,530	,001	,493	16,530	,969
	Level 2 vs. Level 3	,151	1	,151	3,622	,074	,176	3,622	,435
Phase * DSS	Level 1 vs. Level 2	,003	1	,003	,100	,755	,006	,100	,060
	Level 2 vs. Level 3	,003	1	,003	,067	,799	,004	,067	,057
Error(Phase)	Level 1 vs. Level 2	,520	17	,031					
	Level 2 vs. Level 3	,709	17	,042					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,150	1	,150	11,354	,004	,400	11,354	,888
DSS	,002	1	,002	,164	,690	,010	,164	,067
Error	,225	17	,013					

a. Computed using alpha = ,05

Appendix D.6. Repeated Measures ANOVA for Activation (Failed Negotiations)

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,314	3,664[a]	2,000	16,000	,049	,314	7,328	,588
	Wilks' Lambda	,686	3,664[a]	2,000	16,000	,049	,314	7,328	,588
	Hotelling's Trace	,458	3,664[a]	2,000	16,000	,049	,314	7,328	,588
	Roy's Largest Root	,458	3,664[a]	2,000	16,000	,049	,314	7,328	,588
Phase * DSS	Pillai's Trace	,291	3,287[a]	2,000	16,000	,064	,291	6,574	,540
	Wilks' Lambda	,709	3,287[a]	2,000	16,000	,064	,291	6,574	,540
	Hotelling's Trace	,411	3,287[a]	2,000	16,000	,064	,291	6,574	,540
	Roy's Largest Root	,411	3,287[a]	2,000	16,000	,064	,291	6,574	,540

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + DSS
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,997	,052	2	,974	,997	1,000	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + DSS
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,176	2	,088	3,706	,035	,179	7,411	,641
	Greenhouse-Geisser	,176	1,994	,088	3,706	,035	,179	7,387	,640
	Huynh-Feldt	,176	2,000	,088	3,706	,035	,179	7,411	,641
	Lower-bound	,176	1,000	,176	3,706	,071	,179	3,706	,443
Phase * DSS	Sphericity Assumed	,158	2	,079	3,330	,048	,164	6,661	,591
	Greenhouse-Geisser	,158	1,994	,079	3,330	,048	,164	6,639	,590
	Huynh-Feldt	,158	2,000	,079	3,330	,048	,164	6,661	,591
	Lower-bound	,158	1,000	,158	3,330	,086	,164	3,330	,406
Error(Phase)	Sphericity Assumed	,806	34	,024					
	Greenhouse-Geisser	,806	33,890	,024					
	Huynh-Feldt	,806	34,000	,024					
	Lower-bound	,806	17,000	,047					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,209	1	,209	4,309	,053	,202	4,309	,499
	Level 2 vs. Level 3	,010	1	,010	,197	,662	,011	,197	,070
Phase * DSS	Level 1 vs. Level 2	,020	1	,020	,420	,526	,024	,420	,094
	Level 2 vs. Level 3	,160	1	,160	3,254	,089	,161	3,254	,398
Error(Phase)	Level 1 vs. Level 2	,824	17	,048					
	Level 2 vs. Level 3	,834	17	,049					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,009	1	,009	,879	,362	,049	,879	,144
DSS	,002	1	,002	,163	,691	,010	,163	,067
Error	,169	17	,010					

a. Computed using alpha = ,05

Appendix D.7. Repeated Measures ANOVA for AP/DD (Failed Negotiations)

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,157	1,490[a]	2,000	16,000	,255	,157	2,980	,271
	Wilks' Lambda	,843	1,490[a]	2,000	16,000	,255	,157	2,980	,271
	Hotelling's Trace	,186	1,490[a]	2,000	16,000	,255	,157	2,980	,271
	Roy's Largest Root	,186	1,490[a]	2,000	16,000	,255	,157	2,980	,271
Phase * DSS	Pillai's Trace	,274	3,018[a]	2,000	16,000	,077	,274	6,037	,503
	Wilks' Lambda	,726	3,018[a]	2,000	16,000	,077	,274	6,037	,503
	Hotelling's Trace	,377	3,018[a]	2,000	16,000	,077	,274	6,037	,503
	Roy's Largest Root	,377	3,018[a]	2,000	16,000	,077	,274	6,037	,503

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + DSS
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,735	4,934	2	,085	,790	,909	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + DSS
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,069	2	,035	1,641	,209	,088	3,281	,322
	Greenhouse-Geisser	,069	1,581	,044	1,641	,215	,088	2,593	,284
	Huynh-Feldt	,069	1,818	,038	1,641	,212	,088	2,983	,306
	Lower-bound	,069	1,000	,069	1,641	,217	,088	1,641	,227
Phase * DSS	Sphericity Assumed	,115	2	,057	2,714	,081	,138	5,428	,501
	Greenhouse-Geisser	,115	1,581	,073	2,714	,095	,138	4,289	,439
	Huynh-Feldt	,115	1,818	,063	2,714	,087	,138	4,933	,475
	Lower-bound	,115	1,000	,115	2,714	,118	,138	2,714	,343
Error(Phase)	Sphericity Assumed	,718	34	,021					
	Greenhouse-Geisser	,718	26,870	,027					
	Huynh-Feldt	,718	30,904	,023					
	Lower-bound	,718	17,000	,042					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,029	1	,029	,589	,453	,034	,589	,112
	Level 2 vs. Level 3	,040	1	,040	1,935	,182	,102	1,935	,259
Phase * DSS	Level 1 vs. Level 2	,021	1	,021	,421	,525	,024	,421	,094
	Level 2 vs. Level 3	,104	1	,104	5,012	,039	,228	5,012	,560
Error(Phase)	Level 1 vs. Level 2	,847	17	,050					
	Level 2 vs. Level 3	,353	17	,021					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,042	1	,042	3,502	,079	,171	3,502	,423
DSS	7,582E-6	1	7,582E-6	,001	,980	,000	,001	,050
Error	,203	17	,012					

a. Computed using alpha = ,05

Appendix D.8. Repeated Measures ANOVA for AD/DP (Failed Negotiations)

General Linear Model

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Phase	Pillai's Trace	,770	26,745[a]	2,000	16,000	,000	,770	53,491	1,000
	Wilks' Lambda	,230	26,745[a]	2,000	16,000	,000	,770	53,491	1,000
	Hotelling's Trace	3,343	26,745[a]	2,000	16,000	,000	,770	53,491	1,000
	Roy's Largest Root	3,343	26,745[a]	2,000	16,000	,000	,770	53,491	1,000
Phase * DSS	Pillai's Trace	,125	1,144[a]	2,000	16,000	,343	,125	2,287	,216
	Wilks' Lambda	,875	1,144[a]	2,000	16,000	,343	,125	2,287	,216
	Hotelling's Trace	,143	1,144[a]	2,000	16,000	,343	,125	2,287	,216
	Roy's Largest Root	,143	1,144[a]	2,000	16,000	,343	,125	2,287	,216

a. Exact statistic

b. Computed using alpha = ,05

c. Design: Intercept + DSS
Within Subjects Design: Phase

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Phase	,731	5,011	2	,082	,788	,906	,500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + DSS
Within Subjects Design: Phase

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Sphericity Assumed	,723	2	,362	15,498	,000	,477	30,996	,999
	Greenhouse-Geisser	,723	1,576	,459	15,498	,000	,477	24,427	,994
	Huynh-Feldt	,723	1,812	,399	15,498	,000	,477	28,081	,997
	Lower-bound	,723	1,000	,723	15,498	,001	,477	15,498	,960
Phase * DSS	Sphericity Assumed	,052	2	,026	1,117	,339	,062	2,235	,230
	Greenhouse-Geisser	,052	1,576	,033	1,117	,329	,062	1,761	,206
	Huynh-Feldt	,052	1,812	,029	1,117	,335	,062	2,024	,219
	Lower-bound	,052	1,000	,052	1,117	,305	,062	1,117	,170
Error(Phase)	Sphericity Assumed	,793	34	,023					
	Greenhouse-Geisser	,793	26,795	,030					
	Huynh-Feldt	,793	30,803	,026					
	Lower-bound	,793	17,000	,047					

a. Computed using alpha = ,05

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Phase	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Phase	Level 1 vs. Level 2	,682	1	,682	23,210	,000	,577	23,210	,995
	Level 2 vs. Level 3	,119	1	,119	1,698	,210	,091	1,698	,233
Phase * DSS	Level 1 vs. Level 2	,004	1	,004	,134	,719	,008	,134	,064
	Level 2 vs. Level 3	,059	1	,059	,844	,371	,047	,844	,140
Error(Phase)	Level 1 vs. Level 2	,499	17	,029					
	Level 2 vs. Level 3	1,190	17	,070					

a. Computed using alpha = ,05

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	,117	1	,117	10,364	,005	,379	10,364	,858
DSS	,004	1	,004	,348	,563	,020	,348	,086
Error	,192	17	,011					

a. Computed using alpha = ,05

Appendix E

This Appendix includes the complete outputs of the Actor-Partner-Interdependence Models (APIMs) shown in the Chapter E.5.

APIM 1: Valence and Activation in Phase 1 on Valence in Phase 2 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-15,720
Akaike's Information Criterion (AIC)	2,280
Hurvich and Tsai's Criterion (AICC)	5,007
Bozdogan's Criterion (CAIC)	32,257
Schwarz's Bayesian Criterion (BIC)	23,257

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,202775	,076407	38	-2,654	,012	-,357453	-,048098
ph1_CI_a	-,021399	,104898	68,411	-,204	,839	-,230697	,187899
ph1_CI_p	,241850	,104898	68,411	2,306	,024	,032552	,451148
ph1_Valence_a	,128632	,129223	75,951	,995	,323	-,128741	,386005
ph1_Valence_p	,043744	,129223	75,951	,339	,736	-,213629	,301117
ph1_Activation_a	-,240139	,171886	64,042	-1,397	,167	-,583516	,103238
ph1_Activation_p	-,016096	,171886	64,042	-,094	,926	-,359473	,327281

a. Dependent Variable: ph2_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,050326	,008582	5,864	,000	,036028	,070299
	CSR rho	,324095	,145182	2,232	,026	,018266	,574466

a. Dependent Variable: ph2_VA_a.

APIM 2: Valence and Activation in Phase 1 on Valence in Phase 2 (Failed Negotiations)

Information Criteria[a]

-2 Log Likelihood	-33,217
Akaike's Information Criterion (AIC)	-15,217
Hurvich and Tsai's Criterion (AICC)	-8,788
Bozdogan's Criterion (CAIC)	8,521
Schwarz's Bayesian Criterion (BIC)	-,479

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	-,120373	,059804	19	-2,013	,059	-,245545	,004798
ph1_CI_a	,073131	,128884	24,334	,567	,576	-,192679	,338942
ph1_CI_p	-,115050	,128884	24,334	-,893	,381	-,380860	,150761
ph1_Valence_a	,253911	,121483	37,925	2,090	,043	,007966	,499856
ph1_Valence_p	,030132	,121483	37,925	,248	,805	-,215813	,276077
ph1_Activation_a	-,296730	,156898	37,728	-1,891	,066	-,614429	,020970
ph1_Activation_p	,009528	,156898	37,728	,061	,952	-,308172	,327227

a. Dependent Variable: ph2_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,024630	,005697	4,324	,000	,015653	,038756
	CSR rho	-,127818	,225668	-,566	,571	-,521332	,310525

a. Dependent Variable: ph2_VA_a.

APIM 3: Valence and Activation in Phase 1 on Activation in Phase 2 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-63,101
Akaike's Information Criterion (AIC)	-45,101
Hurvich and Tsai's Criterion (AICC)	-42,373
Bozdogan's Criterion (CAIC)	-15,124
Schwarz's Bayesian Criterion (BIC)	-24,124

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,036645	,055379	38,000	,662	,512	-,075465	,148754
ph1_CI_a	,045506	,077072	67,664	,590	,557	-,108304	,199315
ph1_CI_p	-,104907	,077072	67,664	-1,361	,178	-,258716	,048903
ph1_Valence_a	,055590	,094601	75,998	,588	,559	-,132825	,244004
ph1_Valence_p	-,079852	,094601	75,998	-,844	,401	-,268267	,108563
ph1_Activation_a	-,067585	,125313	64,813	-,539	,592	-,317865	,182696
ph1_Activation_p	,215159	,125313	64,813	1,717	,091	-,035122	,465440

a. Dependent Variable: ph2_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,026808	,004548	5,895	,000	,019225	,037382
	CSR rho	,305811	,147050	2,080	,038	-,002031	,560708

a. Dependent Variable: ph2_AC_a.

APIM 4: Valence and Activation in Phase 1 on Activation in Phase 2 (Failed Negotiations)

Information Criteria[a]

-2 Log Likelihood	-10,287
Akaike's Information Criterion (AIC)	7,713
Hurvich and Tsai's Criterion (AICC)	14,142
Bozdogan's Criterion (CAIC)	31,451
Schwarz's Bayesian Criterion (BIC)	22,451

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,133503	,090341	19	1,478	,156	-,055582	,322588
ph1_CI_a	-,097206	,161354	27,077	-,602	,552	-,428233	,233820
ph1_CI_p	,016255	,161354	27,077	,101	,920	-,314772	,347281
ph1_Valence_a	-,196806	,165470	36,867	-1,189	,242	-,532120	,138509
ph1_Valence_p	-,268581	,165470	36,867	-1,623	,113	-,603896	,066734
ph1_Activation_a	,233010	,216732	34,911	1,075	,290	-,207021	,673040
ph1_Aactivation_p	,203513	,216732	34,911	,939	,354	-,236517	,643544

a. Dependent Variable: ph2_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,044858	,010335	4,340	,000	,028557	,070462
	CSR rho	,092809	,227440	,408	,683	-,342189	,495046

a. Dependent Variable: ph2_AC_a.

APIM 5: AP/DD and AD/DP in Phase 1 on AP/DD in Phase 2 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-54,919
Akaike's Information Criterion (AIC)	-36,919
Hurvich and Tsai's Criterion (AICC)	-34,192
Bozdogan's Criterion (CAIC)	-6,943
Schwarz's Bayesian Criterion (BIC)	-15,943

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AP_a.

Estimates of Fixed Effects[a]

Parameter						95% Confidence Interval	
	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	-,116623	,055738	38,000	-2,092	,043	-,229460	-,003787
ph1_CI_a	,018452	,082866	64,096	,223	,824	-,147087	,183992
ph1_CI_p	,095022	,082866	64,096	1,147	,256	-,070518	,260561
ph1_AP/DD_a	-,068968	,112536	72,076	-,613	,542	-,293300	,155365
ph1_AP/DD_p	,080320	,112536	72,076	,714	,478	-,144013	,304652
ph1_AD/DP_a	-,248085	,118845	74,939	-2,087	,040	-,484840	-,011330
ph1_AD/DP_p	,115647	,118845	74,939	,973	,334	-,121108	,352402

a. Dependent Variable: ph2_AP_a.

Estimates of Covariance Parameters[a]

Parameter						95% Confidence Interval	
		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,029123	,004835	6,023	,000	,021034	,040323
	CSR rho	,217645	,154537	1,408	,159	-,096465	,492330

a. Dependent Variable: ph2_AP_a.

APIM 6: AP/DD and AD/DP in Phase 1 on AP/DD in Phase 2 (Failed Negotiations)

Information Criteria[a]

-2 Log Likelihood	-34,475
Akaike's Information Criterion (AIC)	-16,475
Hurvich and Tsai's Criterion (AICC)	-10,046
Bozdogan's Criterion (CAIC)	7,264
Schwarz's Bayesian Criterion (BIC)	-1,736

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,012059	,068851	19	,175	,863	-,132048	,156167
ph1_CI_a	-,019540	,113781	28,629	-,172	,865	-,252380	,213300
ph1_CI_p	-,069187	,113781	28,629	-,608	,548	-,302027	,163653
ph1_AP/DD_a	-,003040	,116085	35,898	-,026	,979	-,238495	,232415
ph1_AP/DD_p	-,011574	,116085	35,898	-,100	,921	-,247029	,223881
ph1_AD/DP_a	-,054146	,163760	32,977	-,331	,743	-,387328	,279035
ph1_AD/DP_p	,229766	,163760	32,977	1,403	,170	-,103415	,562947

a. Dependent Variable: ph2_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,024076	,005623	4,281	,000	,015233	,038054
	CSR rho	,191018	,221045	,864	,388	-,250787	,566966

a. Dependent Variable: ph2_AP_a.

APIM 7: AP/DD and AD/DP in Phase 1 on AD/DP in Phase 2 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-21,053
Akaike's Information Criterion (AIC)	-3,053
Hurvich and Tsai's Criterion (AICC)	-,326
Bozdogan's Criterion (CAIC)	26,924
Schwarz's Bayesian Criterion (BIC)	17,924

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,170871	,076092	38	2,246	,031	,016830	,324912
ph1_CI_a	,046280	,100342	70,595	,461	,646	-,153816	,246376
ph1_CI_p	-,245882	,100342	70,595	-2,450	,017	-,445978	-,045786
ph1_AP/DD_a	,050797	,144588	65,859	,351	,726	-,237895	,339488
ph1_AP/DD_p	,054190	,144588	65,859	,375	,709	-,234502	,342881
ph1_AD/DP_a	,128301	,151218	70,176	,848	,399	-,173281	,429883
ph1_AD/DP_p	,174801	,151218	70,176	1,156	,252	-,126781	,476383

a. Dependent Variable: ph2_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,047948	,008316	5,766	,000	,034130	,067360
	CSR rho	,378354	,138999	2,722	,006	,080018	,614479

a. Dependent Variable: ph2_AD_a.

APIM 8: AP/DD and AD/DP in Phase 1 on AD/DP in Phase 2 (Failed Negotiations)

Information Criteria[a]

-2 Log Likelihood	-9,690
Akaike's Information Criterion (AIC)	8,310
Hurvich and Tsai's Criterion (AICC)	14,738
Bozdogan's Criterion (CAIC)	32,048
Schwarz's Bayesian Criterion (BIC)	23,048

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,176986	,083346	19	2,124	,047	,002541	,351432
ph1_CI_a	-,119066	,172204	24,878	-,691	,496	-,473816	,235683
ph1_CI_p	,095056	,172204	24,878	,552	,586	-,259694	,449805
ph1_AP/DD_a	,042241	,158458	37,979	,267	,791	-,278547	,363028
ph1_AP/DD_p	-,051237	,158458	37,979	-,323	,748	-,372025	,269550
ph1_AD/DP_a	,485778	,218815	37,258	2,220	,033	,042520	,929035
ph1_AD/DP_p	,238923	,218815	37,258	1,092	,282	-,204334	,682180

a. Dependent Variable: ph2_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,045505	,010470	4,346	,000	,028987	,071434
	CSR rho	-,076570	,228071	-,336	,737	-,482599	,356549

a. Dependent Variable: ph2_AD_a.

APIM 9: Valence and Activation in Phase 2 on Valence in Phase 3 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-6,337
Akaike's Information Criterion (AIC)	11,663
Hurvich and Tsai's Criterion (AICC)	14,391
Bozdogan's Criterion (CAIC)	41,640
Schwarz's Bayesian Criterion (BIC)	32,640

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,145997	,078724	38	1,855	,071	-,013372	,305365
ph2_CI_a	-,090752	,162248	75,249	-,559	,578	-,413950	,232446
ph2_CI_p	-,062691	,162248	75,249	-,386	,700	-,385889	,260507
ph2_Valence_a	,208894	,119251	75,617	1,752	,084	-,028634	,446423
ph2_Valence_p	,084985	,119251	75,617	,713	,478	-,152543	,322514
ph2_Activation_a	,047692	,171696	75,318	,278	,782	-,294321	,389705
ph2_Activation_p	-,005870	,171696	75,318	-,034	,973	-,347883	,336142

a. Dependent Variable: ph3_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,056970	,009719	5,862	,000	,040778	,079591
	CSR rho	,325566	,145027	2,245	,025	,019909	,575567

a. Dependent Variable: ph3_VA_a.

APIM 10: Valence and Activation in Phase 2 on Valence in Phase 3 (Failed Negotiations)

Information Criteria[a]

-2 Log Likelihood	-9,166
Akaike's Information Criterion (AIC)	8,834
Hurvich and Tsai's Criterion (AICC)	15,263
Bozdogan's Criterion (CAIC)	32,572
Schwarz's Bayesian Criterion (BIC)	23,572

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,028347	,102022	19	-,278	,784	-,241882	,185187
ph2_CI_a	-,122826	,181930	36,514	-,675	,504	-,491618	,245966
ph2_CI_p	-,254391	,181930	36,514	-1,398	,170	-,623183	,114401
ph2_Valence_a	,609118	,221918	37,869	2,745	,009	,159819	1,058418
ph2_Valence_p	,133267	,221918	37,869	,601	,552	-,316033	,582566
ph2_Activation_a	,321301	,183151	37,822	1,754	,087	-,049526	,692128
ph2_Activation_p	,254571	,183151	37,822	1,390	,173	-,116256	,625398

a. Dependent Variable: ph3_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,046004	,010555	4,359	,000	,029343	,072125
	CSR rho	,010481	,229391	,046	,964	-,412952	,430188

a. Dependent Variable: ph3_VA_a.

APIM 11: Valence and Activation in Phase 2 on Activation in Phase 3 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-25,211
Akaike's Information Criterion (AIC)	-7,211
Hurvich and Tsai's Criterion (AICC)	-4,483
Bozdogan's Criterion (CAIC)	22,766
Schwarz's Bayesian Criterion (BIC)	13,766

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,060913	,070967	38	-,858	,396	-,204579	,082752
ph2_CI_a	,059414	,143655	74,535	,414	,680	-,226790	,345618
ph2_CI_p	,156203	,143655	74,535	1,087	,280	-,130001	,442407
ph2_Valence_a	,092522	,105523	75,063	,877	,383	-,117688	,302731
ph2_Valence_p	,030891	,105523	75,063	,293	,771	-,179318	,241101
ph2_Activation_a	,282065	,152005	74,630	1,856	,067	-,020769	,584898
ph2_Activation_p	,023062	,152005	74,630	,152	,880	-,279772	,325896

a. Dependent Variable: ph3_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,045070	,007775	5,797	,000	,032141	,063201
	CSR rho	,361609	,141009	2,564	,010	,060713	,602259

a. Dependent Variable: ph3_AC_a.

APIM 12: Valence and Activation in Phase 2 on Activation in Phase 3 (Failed Negotiations)

Information Criteria[a]

-2 Log Likelihood	-2,385
Akaike's Information Criterion (AIC)	15,615
Hurvich and Tsai's Criterion (AICC)	22,043
Bozdogan's Criterion (CAIC)	39,353
Schwarz's Bayesian Criterion (BIC)	30,353

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,099379	,119560	19	,831	,416	-,150862	,349621
ph2_CI_a	-,008110	,202628	34,258	-,040	,968	-,419785	,403565
ph2_CI_p	,012177	,202628	34,258	,060	,952	-,399498	,423852
ph2_Valence_a	-,056954	,244781	36,607	-,233	,817	-,553108	,439199
ph2_Valence_p	,457617	,244781	36,607	1,869	,070	-,038536	,953770
ph2_Activation_a	,034280	,200253	37,815	,171	,865	-,371176	,439737
ph2_Activation_p	,362677	,200253	37,815	1,811	,078	-,042779	,768134

a. Dependent Variable: ph3_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,055602	,012895	4,312	,000	,035292	,087599
	CSR rho	,148202	,224377	,661	,509	-,291628	,536301

a. Dependent Variable: ph3_AC_a.

APIM 13: AP/DD and AD/DP in Phase 2 on AP/DD in Phase 3 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-35,997
Akaike's Information Criterion (AIC)	-17,997
Hurvich and Tsai's Criterion (AICC)	-15,270
Bozdogan's Criterion (CAIC)	11,980
Schwarz's Bayesian Criterion (BIC)	2,980

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,059097	,074109	38	,797	,430	-,090930	,209123
ph2_CI_a	-,022580	,137674	67,529	-,164	,870	-,297338	,252178
ph2_CI_p	,067530	,137674	67,529	,491	,625	-,207228	,342288
ph2_AP/DD_a	,311703	,140040	64,676	2,226	,030	,031996	,591409
ph2_AP/DD_p	,065287	,140040	64,676	,466	,643	-,214420	,344993
ph2_AD/DP_a	,012528	,108348	72,545	,116	,908	-,203433	,228489
ph2_AD/DP_p	-,051015	,108348	72,545	-,471	,639	-,266976	,164945

a. Dependent Variable: ph3_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,043394	,008008	5,419	,000	,030224	,062302
	CSR rho	,542227	,114527	4,735	,000	,281543	,728373

a. Dependent Variable: ph3_AP_a.

APIM 14: AP/DD and AD/DP in Phase 2 on AP/DD in Phase 3 (Failed Negotiations)

Information Criteria[a]

-2 Log Likelihood	-12,574
Akaike's Information Criterion (AIC)	5,426
Hurvich and Tsai's Criterion (AICC)	11,855
Bozdogan's Criterion (CAIC)	29,165
Schwarz's Bayesian Criterion (BIC)	20,165

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AP_a.

Estimates of Fixed Effects[a]

Parameter						95% Confidence Interval	
	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	,051851	,092261	19	,562	,581	-,141253	,244956
ph2_CI_a	-,092499	,172549	37,669	-,536	,595	-,441906	,256909
ph2_CI_p	-,168769	,172549	37,669	-,978	,334	-,518177	,180638
ph2_AP/DD_a	,450017	,225880	37,572	1,992	,054	-,007423	,907458
ph2_AP/DD_p	,609733	,225880	37,572	2,699	,010	,152292	1,067173
ph2_AD/DP_a	-,099465	,157872	37,639	-,630	,532	-,419162	,220231
ph2_AD/DP_p	,003700	,157872	37,639	,023	,981	-,315996	,323397

a. Dependent Variable: ph3_AP_a.

Estimates of Covariance Parameters[a]

Parameter						95% Confidence Interval	
		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,042263	,009743	4,338	,000	,026899	,066405
	CSR rho	-,099007	,227167	-,436	,663	-,499755	,336654

a. Dependent Variable: ph3_AP_a.

APIM 15: AP/DD and AD/DP in Phase 2 on AD/DP in Phase 3 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-1,254
Akaike's Information Criterion (AIC)	16,746
Hurvich and Tsai's Criterion (AICC)	19,474
Bozdogan's Criterion (CAIC)	46,723
Schwarz's Bayesian Criterion (BIC)	37,723

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,145832	,075850	38	-1,923	,062	-,299383	,007718
ph2_CI_a	,105536	,167396	75,876	,630	,530	-,227871	,438942
ph2_CI_p	,151431	,167396	75,876	,905	,369	-,181975	,484838
ph2_AP/DD_a	,059232	,167787	75,907	,353	,725	-,274951	,393415
ph2_AP/DD_p	-,015647	,167787	75,907	-,093	,926	-,349830	,318536
ph2_AD/DP_a	,177589	,135721	73,440	1,308	,195	-,092874	,448053
ph2_AD/DP_p	,040552	,135721	73,440	,299	,766	-,229912	,311015

a. Dependent Variable: ph3_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,058708	,009702	6,051	,000	,042466	,081163
	CSR rho	,194094	,156110	1,243	,214	-,120768	,473472

a. Dependent Variable: ph3_AD_a.

APIM 16: AP/DD and AD/DP in Phase 2 on AD/DP in Phase 3 (Successful Negotiations)

Information Criteria[a]

-2 Log Likelihood	-,273
Akaike's Information Criterion (AIC)	17,727
Hurvich and Tsai's Criterion (AICC)	24,156
Bozdogan's Criterion (CAIC)	41,465
Schwarz's Bayesian Criterion (BIC)	32,465

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,090282	,127210	19,000	,710	,487	-,175973	,356536
ph2_CI_a	,082351	,210981	32,964	,390	,699	-,346910	,511613
ph2_CI_p	,189738	,210981	32,964	,899	,375	-,239524	,618999
ph2_AP/DD_a	-,471618	,267763	36,417	-1,761	,087	-1,014451	,071215
ph2_AP/DD_p	,209076	,267763	36,417	,781	,440	-,333757	,751909
ph2_AD/DP_a	,194590	,187407	36,291	1,038	,306	-,185383	,574563
ph2_AD/DP_p	-,114045	,187407	36,291	-,609	,547	-,494018	,265929

a. Dependent Variable: ph3_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,059535	,013973	4,261	,000	,037583	,094310
	CSR rho	,215956	,218717	,987	,323	-,226253	,584359

a. Dependent Variable: ph3_AD_a.

Appendix F

This Appendix includes the complete outputs of the Actor-Partner-Interdependence Models (APIMs) shown in the Chapter E.6.

APIM 17: Valence and Activation in Phase 1 on Valence in Phase 2 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-22,775
Akaike's Information Criterion (AIC)	-4,775
Hurvich and Tsai's Criterion (AICC)	,850
Bozdogan's Criterion (CAIC)	19,864
Schwarz's Bayesian Criterion (BIC)	10,864

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,179705	,077794	21	-2,310	,031	-,341487	-,017923
ph1_CI_a	-,038360	,115023	37,641	-,334	,741	-,271285	,194564
ph1_CI_p	,290095	,115023	37,641	2,522	,016	,057171	,523020
ph1_Valence_a	,184902	,146646	41,934	1,261	,214	-,111056	,480860
ph1_Valence_p	-,038858	,146646	41,934	-,265	,792	-,334816	,257100
ph1_Activation_a	-,119679	,205354	31,141	-,583	,564	-,538425	,299066
ph1_Activation_p	-,100171	,205354	31,141	-,488	,629	-,518917	,318574

a. Dependent Variable: ph2_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,036787	,008585	4,285	,000	,023284	,058121
	CSR rho	,378980	,186876	2,028	,043	-,028823	,678629

a. Dependent Variable: ph2_VA_a.

APIM 18: Valence and Activation in Phase 1 on Valence in Phase 2 (Successful Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-1,512
Akaike's Information Criterion (AIC)	16,488
Hurvich and Tsai's Criterion (AICC)	23,988
Bozdogan's Criterion (CAIC)	39,225
Schwarz's Bayesian Criterion (BIC)	30,225

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_VA_a.

Estimates of Fixed Effects[a]

Parameter						95% Confidence Interval	
	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	-,291903	,163655	17,000	-1,784	,092	-,637186	,053379
ph1_CI_a	-,020145	,194296	31,697	-,104	,918	-,416062	,375772
ph1_CI_p	,281503	,194296	31,697	1,449	,157	-,114414	,677420
ph1_Valence_a	,143186	,227028	32,443	,631	,533	-,319007	,605380
ph1_Valence_p	,156277	,227028	32,443	,688	,496	-,305916	,618471
ph1_Activation_a	-,423230	,314624	32,166	-1,345	,188	-1,063969	,217510
ph1_Activation_p	,333748	,314624	32,166	1,061	,297	-,306992	,974487

a. Dependent Variable: ph2_VA_a.

Estimates of Covariance Parameters[a]

Parameter						95% Confidence Interval	
		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,059258	,015121	3,919	,000	,035938	,097711
	CSR rho	,326887	,216619	1,509	,131	-,135189	,672175

a. Dependent Variable: ph2_VA_a.

APIM 19: Valence and Activation in Phase 1 on Activation in Phase 2 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-39,861
Akaike's Information Criterion (AIC)	-21,861
Hurvich and Tsai's Criterion (AICC)	-16,236
Bozdogan's Criterion (CAIC)	2,778
Schwarz's Bayesian Criterion (BIC)	-6,222

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,013696	,060282	21	-,227	,822	-,139060	,111668
ph1_CI_a	,096432	,095736	35,493	1,007	,321	-,097825	,290689
ph1_CI_p	-,151588	,095736	35,493	-1,583	,122	-,345845	,042669
ph1_Valence_a	,085798	,120218	41,171	,714	,479	-,156957	,328553
ph1_Valence_p	,030139	,120218	41,171	,251	,803	-,212616	,272894
ph1_Activation_a	-,214975	,162821	33,082	-1,320	,196	-,546205	,116255
ph1_Activation_p	,265447	,162821	33,082	1,630	,113	-,065783	,596676

a. Dependent Variable: ph2_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,023662	,005372	4,404	,000	,015163	,036924
	CSR rho	,287301	,200206	1,435	,151	-,131315	,618962

a. Dependent Variable: ph2_AC_a.

APIM 20: Valence and Activation in Phase 1 on Activation in Phase 2 (Successful Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-35,147
Akaike's Information Criterion (AIC)	-17,147
Hurvich and Tsai's Criterion (AICC)	-9,647
Bozdogan's Criterion (CAIC)	5,590
Schwarz's Bayesian Criterion (BIC)	-3,410

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,202841	,099421	17	2,040	,057	-,006920	,412601
ph1_CI_a	-,027742	,118604	31,585	-,234	,817	-,269456	,213971
ph1_CI_p	-,163157	,118604	31,585	-1,376	,179	-,404870	,078557
ph1_Valence_a	-,104144	,138330	32,539	-,753	,457	-,385729	,177441
ph1_Valence_p	-,298642	,138330	32,539	-2,159	,038	-,580227	-,017057
ph1_Activation_a	,191501	,191688	32,269	,999	,325	-,198828	,581829
ph1_Activation_p	,010582	,191688	32,269	,055	,956	-,379747	,400910

a. Dependent Variable: ph2_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,021982	,005598	3,927	,000	,013344	,036210
	CSR rho	,320128	,217680	1,471	,141	-,142593	,668016

a. Dependent Variable: ph2_AC_a.

APIM 21: AP/DD and AD/DP in Phase 1 on AP/DD in Phase 2 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-47,132
Akaike's Information Criterion (AIC)	-29,132
Hurvich and Tsai's Criterion (AICC)	-23,507
Bozdogan's Criterion (CAIC)	-4,493
Schwarz's Bayesian Criterion (BIC)	-13,493

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	-,134925	,052943	21	-2,548	,019	-,245027	-,024824
ph1_CI_a	,042589	,089570	33,704	,475	,638	-,139498	,224676
ph1_CI_p	,093194	,089570	33,704	1,040	,306	-,088893	,275281
ph1_AP/DD_a	-,037571	,131456	37,505	-,286	,777	-,303806	,228664
ph1_AP/DD_p	,083097	,131456	37,505	,632	,531	-,183138	,349332
ph1_AD/DP_a	-,301664	,128144	41,872	-2,354	,023	-,560293	-,043035
ph1_AD/DP_p	,088208	,128144	41,872	,688	,495	-,170421	,346837

a. Dependent Variable: ph2_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,019480	,004340	4,488	,000	,012587	,030147
	CSR rho	,206099	,208949	,986	,324	-,215189	,562712

a. Dependent Variable: ph2_AP_a.

APIM 22: AP/DD and AD/DP in Phase 1 on AP/DD in Phase 2 (Successful Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-13,752
Akaike's Information Criterion (AIC)	4,248
Hurvich and Tsai's Criterion (AICC)	11,748
Bozdogan's Criterion (CAIC)	26,985
Schwarz's Bayesian Criterion (BIC)	17,985

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,063353	,128210	17	-,494	,628	-,333852	,207147
ph1_CI_a	-,033006	,165780	29,636	-,199	,844	-,371750	,305737
ph1_CI_p	,086273	,165780	29,636	,520	,607	-,252470	,425016
ph1_AP/DD_a	-,105179	,205028	33,558	-,513	,611	-,522048	,311690
ph1_AP/DD_p	,093147	,205028	33,558	,454	,653	-,323722	,510016
ph1_AD/DP_a	-,142226	,245858	33,656	-,578	,567	-,642057	,357606
ph1_AD/DP_p	,236694	,245858	33,656	,963	,343	-,263137	,736526

a. Dependent Variable: ph2_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,039942	,009894	4,037	,000	,024580	,064905
	CSR rho	,207628	,232080	,895	,371	-,258659	,595440

a. Dependent Variable: ph2_AP_a.

APIM 23: AP/DD and AD/DP in Phase 1 on AD/DP in Phase 2 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-18,814
Akaike's Information Criterion (AIC)	-,814
Hurvich and Tsai's Criterion (AICC)	4,811
Bozdogan's Criterion (CAIC)	23,825
Schwarz's Bayesian Criterion (BIC)	14,825

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,119181	,082977	21	1,436	,166	-,053379	,291741
ph1_CI_a	,094960	,119897	38,334	,792	,433	-,147688	,337609
ph1_CI_p	-,313748	,119897	38,334	-2,617	,013	-,556397	-,071099
ph1_AP/DD_a	-,096652	,193466	32,879	-,500	,621	-,490317	,297012
ph1_AP/DD_p	,218091	,193466	32,879	1,127	,268	-,175574	,611755
ph1_AD/DP_a	,007035	,182881	39,092	,038	,970	-,362848	,376918
ph1_AD/DP_p	,143872	,182881	39,092	,787	,436	-,226011	,513755

a. Dependent Variable: ph2_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,040980	,009659	4,243	,000	,025819	,065044
	CSR rho	,408275	,181843	2,245	,025	,005840	,696895

a. Dependent Variable: ph2_AD_a.

APIM 24: AP/DD and AD/DP in Phase 1 on AD/DP in Phase 2 (Successful Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-15,503
Akaike's Information Criterion (AIC)	2,497
Hurvich and Tsai's Criterion (AICC)	9,997
Bozdogan's Criterion (CAIC)	25,234
Schwarz's Bayesian Criterion (BIC)	16,234

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,350369	,142349	17	2,461	,025	,050038	,650700
ph1_CI_a	-,006242	,156059	33,321	-,040	,968	-,323631	,311147
ph1_CI_p	-,314368	,156059	33,321	-2,014	,052	-,631757	,003021
ph1_AP/DD_a	,185988	,206154	30,115	,902	,374	-,234967	,606943
ph1_AP/DD_p	-,386774	,206154	30,115	-1,876	,070	-,807729	,034181
ph1_AD/DP_a	,436332	,246790	30,344	1,768	,087	-,067440	,940105
ph1_AD/DP_p	,071501	,246790	30,344	,290	,774	-,432272	,575274

a. Dependent Variable: ph2_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,041311	,010944	3,775	,000	,024580	,069432
	CSR rho	,439338	,195722	2,245	,025	-,003951	,738318

a. Dependent Variable: ph2_AD_a.

APIM 25: Valence and Activation in Phase 2 on Valence in Phase 3 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-15,943
Akaike's Information Criterion (AIC)	2,057
Hurvich and Tsai's Criterion (AICC)	7,682
Bozdogan's Criterion (CAIC)	26,696
Schwarz's Bayesian Criterion (BIC)	17,696

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,000796	,081682	21	,010	,992	-,169072	,170663
ph2_CI_a	,164410	,188710	38,784	,871	,389	-,217360	,546179
ph2_CI_p	,044761	,188710	38,784	,237	,814	-,337009	,426530
ph2_Valence_a	,378494	,168213	36,830	2,250	,031	,037609	,719379
ph2_Valence_p	-,024738	,168213	36,830	-,147	,884	-,365623	,316147
ph2_Activation_a	-,025761	,205874	39,620	-,125	,901	-,441972	,390451
ph2_Activation_p	-,149912	,205874	39,620	-,728	,471	-,566123	,266299

a. Dependent Variable: ph3_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,040342	,008865	4,551	,000	,026224	,062059
	CSR rho	-,118741	,215141	-,552	,581	-,498271	,298976

a. Dependent Variable: ph3_VA_a.

APIM 26: Valence and Activation in Phase 2 on Valence in Phase 3 (Successful Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-5,115
Akaike's Information Criterion (AIC)	12,885
Hurvich and Tsai's Criterion (AICC)	20,385
Bozdogan's Criterion (CAIC)	35,622
Schwarz's Bayesian Criterion (BIC)	26,622

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,300601	,135952	17	2,211	,041	,013766	,587435
ph2_CI_a	-,459779	,281118	27,389	-1,636	,113	-1,036201	,116644
ph2_CI_p	-,260761	,281118	27,389	-,928	,362	-,837183	,315662
ph2_Valence_a	-,004330	,170101	27,194	-,025	,980	-,353233	,344572
ph2_Valence_p	,058115	,170101	27,194	,342	,735	-,290788	,407017
ph2_Activation_a	,070063	,263529	30,210	,266	,792	-,467979	,608105
ph2_Activation_p	-,003383	,263529	30,210	-,013	,990	-,541425	,534659

a. Dependent Variable: ph3_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,063388	,017985	3,525	,000	,036349	,110538
	CSR rho	,607054	,153158	3,964	,000	,224967	,827327

a. Dependent Variable: ph3_VA_a.

APIM 27: Valence and Activation in Phase 2 on Activation in Phase 3 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-18,536
Akaike's Information Criterion (AIC)	-,536
Hurvich and Tsai's Criterion (AICC)	5,089
Bozdogan's Criterion (CAIC)	24,103
Schwarz's Bayesian Criterion (BIC)	15,103

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	-,034565	,101453	21	-,341	,737	-,245548	,176418
ph2_CI_a	,062160	,180824	40,441	,344	,733	-,303175	,427494
ph2_CI_p	,204334	,180824	40,441	1,130	,265	-,161001	,569668
ph2_Valence_a	,038490	,157452	41,575	,244	,808	-,279356	,356337
ph2_Valence_p	,235283	,157452	41,575	1,494	,143	-,082564	,553129
ph2_Activation_a	,293377	,199491	39,708	1,471	,149	-,109902	,696655
ph2_Activation_p	,252177	,199491	39,708	1,264	,214	-,151102	,655455

a. Dependent Variable: ph3_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,040351	,009356	4,313	,000	,025615	,063565
	CSR rho	,359189	,190064	1,890	,059	-,051699	,666074

a. Dependent Variable: ph3_AC_a.

APIM 28: Valence and Activation in Phase 2 on Activation in Phase 3 (Successful Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-14,234
Akaike's Information Criterion (AIC)	3,766
Hurvich and Tsai's Criterion (AICC)	11,266
Bozdogan's Criterion (CAIC)	26,504
Schwarz's Bayesian Criterion (BIC)	17,504

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,001048	,099869	17	,010	,992	-,209657	,211754
ph2_CI_a	-,171613	,231482	32,853	-,741	,464	-,642647	,299422
ph2_CI_p	-,055749	,231482	32,853	-,241	,811	-,526784	,415285
ph2_Valence_a	,046480	,139815	32,713	,332	,742	-,238070	,331031
ph2_Valence_p	-,169180	,139815	32,713	-1,210	,235	-,453730	,115370
ph2_Activation_a	,313051	,222888	33,984	1,405	,169	-,139921	,766022
ph2_Activation_p	-,196307	,222888	33,984	-,881	,385	-,649278	,256665

a. Dependent Variable: ph3_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,040983	,010503	3,902	,000	,024801	,067724
	CSR rho	,341285	,214286	1,593	,111	-,119244	,680963

a. Dependent Variable: ph3_AC_a.

APIM 29: AP/DD and AD/DP in Phase 2 on AP/DD in Phase 3 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-50,917
Akaike's Information Criterion (AIC)	-32,917
Hurvich and Tsai's Criterion (AICC)	-27,292
Bozdogan's Criterion (CAIC)	-8,278
Schwarz's Bayesian Criterion (BIC)	-17,278

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,024303	,070750	21	-,344	,735	-,171436	,122830
ph2_CI_a	,159070	,123659	39,639	1,286	,206	-,090926	,409065
ph2_CI_p	,178072	,123659	39,639	1,440	,158	-,071924	,428068
ph2_AP/DD_a	,341202	,141704	38,645	2,408	,021	,054495	,627909
ph2_AP/DD_p	,159993	,141704	38,645	1,129	,266	-,126714	,446700
ph2_AD/DP_a	-,074726	,100462	41,460	-,744	,461	-,277545	,128093
ph2_AD/DP_p	-,055737	,100462	41,460	-,555	,582	-,258557	,147082

a. Dependent Variable: ph3_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,019023	,004474	4,252	,000	,011997	,030162
	CSR rho	,401907	,182969	2,197	,028	-,001778	,692956

a. Dependent Variable: ph3_AP_a.

APIM 30: AP/DD and AD/DP in Phase 2 on AP/DD in Phase 3 (Successful Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-4,223
Akaike's Information Criterion (AIC)	13,777
Hurvich and Tsai's Criterion (AICC)	21,277
Bozdogan's Criterion (CAIC)	36,515
Schwarz's Bayesian Criterion (BIC)	27,515

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	,213117	,130599	17	1,632	,121	-,062422	,488656
ph2_CI_a	-,447792	,278099	29,176	-1,610	,118	-1,016418	,120835
ph2_CI_p	-,225319	,278099	29,176	-,810	,424	-,793945	,343307
ph2_AP/DD_a	,207276	,240030	29,050	,864	,395	-,283605	,698157
ph2_AP/DD_p	-,159953	,240030	29,050	-,666	,510	-,650834	,330928
ph2_AD/DP_a	,167453	,199313	33,272	,840	,407	-,237927	,572834
ph2_AD/DP_p	-,045831	,199313	33,272	-,230	,820	-,451211	,359550

a. Dependent Variable: ph3_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,061227	,016844	3,635	,000	,035708	,104984
	CSR rho	,535422	,173006	3,095	,002	,121747	,790617

a. Dependent Variable: ph3_AP_a.

APIM 31: AP/DD and AD/DP in Phase 2 on AD/DP in Phase 3 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	2,152
Akaike's Information Criterion (AIC)	20,152
Hurvich and Tsai's Criterion (AICC)	25,777
Bozdogan's Criterion (CAIC)	44,791
Schwarz's Bayesian Criterion (BIC)	35,791

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,024512	,109368	21	-,224	,825	-,251956	,202932
ph2_CI_a	-,074609	,230232	41,165	-,324	,748	-,539515	,390297
ph2_CI_p	,109915	,230232	41,165	,477	,636	-,354991	,574821
ph2_AP/DD_a	-,010512	,261071	41,673	-,040	,968	-,537497	,516473
ph2_AP/DD_p	,329055	,261071	41,673	1,260	,215	-,197930	,856040
ph2_AD/DP_a	,330525	,191972	39,128	1,722	,093	-,057734	,718785
ph2_AD/DP_p	,066778	,191972	39,128	,348	,730	-,321481	,455038

a. Dependent Variable: ph3_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,061663	,013464	4,580	,000	,040195	,094597
	CSR rho	,033472	,217973	,154	,878	-,374988	,431048

a. Dependent Variable: ph3_AD_a.

APIM 32: AP/DD and AD/DP in Phase 2 on AD/DP in Phase 3 (Successful Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-14,302
Akaike's Information Criterion (AIC)	3,698
Hurvich and Tsai's Criterion (AICC)	11,198
Bozdogan's Criterion (CAIC)	26,436
Schwarz's Bayesian Criterion (BIC)	17,436

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,211606	,106920	17	-1,979	,064	-,437188	,013976
ph2_CI_a	,204795	,235329	30,902	,870	,391	-,275224	,684814
ph2_CI_p	,142619	,235329	30,902	,606	,549	-,337400	,622637
ph2_AP/DD_a	,145707	,203048	30,782	,718	,478	-,268530	,559944
ph2_AP/DD_p	-,214460	,203048	30,782	-1,056	,299	-,628697	,199778
ph2_AD/DP_a	,097353	,170996	33,930	,569	,573	-,250179	,444886
ph2_AD/DP_p	,015408	,170996	33,930	,090	,929	-,332125	,362941

a. Dependent Variable: ph3_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,043234	,011531	3,749	,000	,025633	,072920
	CSR rho	,457439	,191785	2,385	,017	,018704	,748453

a. Dependent Variable: ph3_AD_a.

APIM 33: Valence and Activation in Phase 1 on Valence in Phase 2 (Failed Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-27,047
Akaike's Information Criterion (AIC)	-9,047
Hurvich and Tsai's Criterion (AICC)	5,953
Bozdogan's Criterion (CAIC)	9,773
Schwarz's Bayesian Criterion (BIC)	,773

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	-,187863	,059939	11	-3,134	,010	-,319788	-,055938
ph1_CI_a	,212628	,163251	12,568	1,302	,216	-,141290	,566546
ph1_CI_p	-,185688	,163251	12,568	-1,137	,277	-,539606	,168230
ph1_Valence_a	,284941	,149440	16,020	1,907	,075	-,031825	,601706
ph1_Valence_p	-,053018	,149440	16,020	-,355	,727	-,369784	,263748
ph1_Activation_a	-,544817	,175554	21,238	-3,103	,005	-,909653	-,179981
ph1_Activation_p	-,088871	,175554	21,238	-,506	,618	-,453707	,275965

a. Dependent Variable: ph2_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,018830	,006149	3,062	,002	,009929	,035711
	CSR rho	-,415904	,249357	-1,668	,095	-,775380	,147146

a. Dependent Variable: ph2_VA_a.

APIM 34: Valence and Activation in Phase 1 on Valence in Phase 2 (Failed Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-17,302
Akaike's Information Criterion (AIC)	,698
Hurvich and Tsai's Criterion (AICC)	30,698
Bozdogan's Criterion (CAIC)	16,651
Schwarz's Bayesian Criterion (BIC)	7,651

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,039113	,151571	8	-,258	,803	-,388637	,310411
ph1_CI_a	-,015885	,184311	14,628	-,086	,932	-,409607	,377838
ph1_CI_p	-,119293	,184311	14,628	-,647	,528	-,513015	,274429
ph1_Valence_a	-,288043	,356098	11,858	-,809	,435	-1,064949	,488862
ph1_Valence_p	,240096	,356098	11,858	,674	,513	-,536810	1,017001
ph1_Activation_a	,628358	,436892	14,298	1,438	,172	-,306853	1,563568
ph1_Activation_p	-,264433	,436892	14,298	-,605	,554	-1,199644	,670777

a. Dependent Variable: ph2_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,021013	,007817	2,688	,007	,010135	,043566
	CSR rho	,327314	,315676	1,037	,300	-,339152	,775017

a. Dependent Variable: ph2_VA_a.

APIM 35: Valence and Activation in Phase 1 on Activation in Phase 2 (Failed Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-3,122
Akaike's Information Criterion (AIC)	14,878
Hurvich and Tsai's Criterion (AICC)	29,878
Bozdogan's Criterion (CAIC)	33,697
Schwarz's Bayesian Criterion (BIC)	24,697

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,241425	,122155	11	1,976	,074	-,027436	,510286
ph1_CI_a	-,209713	,245161	14,030	-,855	,407	-,735426	,315999
ph1_CI_p	,018442	,245161	14,030	,075	,941	-,507270	,544155
ph1_Valence_a	-,050641	,236989	19,507	-,214	,833	-,545793	,444510
ph1_Valence_p	-,305320	,236989	19,507	-1,288	,213	-,800472	,189832
ph1_Activation_a	,656162	,301199	21,555	2,178	,041	,030765	1,281560
ph1_Activation_p	,484878	,301199	21,555	1,610	,122	-,140520	1,110275

a. Dependent Variable: ph2_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,051091	,015491	3,298	,001	,028201	,092560
	CSR rho	-,105893	,298130	-,355	,722	-,602615	,449968

a. Dependent Variable: ph2_AC_a.

APIM 36: Valence and Activation in Phase 1 on Activation in Phase 2 (Failed Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-20,992
Akaike's Information Criterion (AIC)	-2,992
Hurvich and Tsai's Criterion (AICC)	27,008
Bozdogan's Criterion (CAIC)	12,961
Schwarz's Bayesian Criterion (BIC)	3,961

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,016302	,112678	8	-,145	,889	-,276137	,243533
ph1_CI_a	,022960	,178396	11,861	,129	,900	-,366240	,412159
ph1_CI_p	,069942	,178396	11,861	,392	,702	-,319258	,459141
ph1_Valence_a	,139136	,292115	14,625	,476	,641	-,484885	,763158
ph1_Valence_p	,167950	,292115	14,625	,575	,574	-,456072	,791972
ph1_Activation_a	-,562489	,377169	16,000	-1,491	,155	-1,362051	,237073
ph1_Activation_p	-,576272	,377169	16,000	-1,528	,146	-1,375834	,223290

a. Dependent Variable: ph2_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,015770	,005577	2,828	,005	,007885	,031540
	CSR rho	-,022606	,353373	-,064	,949	-,614153	,585205

a. Dependent Variable: ph2_AC_a.

APIM 37: AP/DD and AD/DP in Phase 1 on AP/DD in Phase 2 (Failed Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-20,429
Akaike's Information Criterion (AIC)	-2,429
Hurvich and Tsai's Criterion (AICC)	12,571
Bozdogan's Criterion (CAIC)	16,390
Schwarz's Bayesian Criterion (BIC)	7,390

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,042631	,102920	11	,414	,687	-,183896	,269157
ph1_CI_a	-,003017	,143688	17,726	-,021	,983	-,305230	,299195
ph1_CI_p	-,116003	,143688	17,726	-,807	,430	-,418215	,186210
ph1_AP/DD_a	,178757	,191288	20,886	,934	,361	-,219180	,576695
ph1_AP/DD_p	,025785	,191288	20,886	,135	,894	-,372152	,423722
ph1_AD/DP_a	-,052341	,188510	17,221	-,278	,785	-,449674	,344992
ph1_AD/DP_p	,382610	,188510	17,221	2,030	,058	-,014723	,779943

a. Dependent Variable: ph2_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,024468	,007759	3,153	,002	,013143	,045555
	CSR rho	,325830	,269501	1,209	,227	-,247544	,730178

a. Dependent Variable: ph2_AP_a.

APIM 38: AP/DD and AD/DP in Phase 1 on AP/DD in Phase 2 (Failed Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-20,965
Akaike's Information Criterion (AIC)	-2,965
Hurvich and Tsai's Criterion (AICC)	27,035
Bozdogan's Criterion (CAIC)	12,988
Schwarz's Bayesian Criterion (BIC)	3,988

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,034569	,117981	8	-,293	,777	-,306632	,237495
ph1_CI_a	,001144	,173147	12,573	,007	,995	-,374214	,376502
ph1_CI_p	-,037083	,173147	12,573	-,214	,834	-,412441	,338275
ph1_AP/DD_a	-,047782	,147036	15,800	-,325	,749	-,359805	,264240
ph1_AP/DD_p	-,217098	,147036	15,800	-1,477	,159	-,529121	,094925
ph1_AD/DP_a	,099861	,456272	15,188	,219	,830	-,871614	1,071337
ph1_AD/DP_p	-,604564	,456272	15,188	-1,325	,205	-1,576039	,366911

a. Dependent Variable: ph2_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,015848	,005623	2,819	,005	,007906	,031766
	CSR rho	,083381	,351095	,237	,812	-,543688	,650709

a. Dependent Variable: ph2_AP_a.

APIM 39: AP/DD and AD/DP in Phase 1 on AD/DP in Phase 2 (Failed Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-8,269
Akaike's Information Criterion (AIC)	9,731
Hurvich and Tsai's Criterion (AICC)	24,731
Bozdogan's Criterion (CAIC)	28,551
Schwarz's Bayesian Criterion (BIC)	19,551

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	,302875	,088958	11	3,405	,006	,107081	,498670
ph1_CI_a	-,298890	,257220	12,382	-1,162	,267	-,857412	,259631
ph1_CI_p	,146569	,257220	12,382	,570	,579	-,411953	,705090
ph1_AP/DD_a	,442771	,271508	16,983	1,631	,121	-,130105	1,015646
ph1_AP/DD_p	,166028	,271508	16,983	,612	,549	-,406847	,738903
ph1_AD/DP_a	,762355	,232942	20,677	3,273	,004	,277464	1,247246
ph1_AD/DP_p	,405289	,232942	20,677	1,740	,097	-,079602	,890180

a. Dependent Variable: ph2_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,045468	,015130	3,005	,003	,023684	,087289
	CSR rho	-,466967	,235764	-1,981	,048	-,799468	,084564

a. Dependent Variable: ph2_AD_a.

APIM 40: AP/DD and AD/DP in Phase 1 on AD/DP in Phase 2 (Failed Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-16,838
Akaike's Information Criterion (AIC)	1,162
Hurvich and Tsai's Criterion (AICC)	31,162
Bozdogan's Criterion (CAIC)	17,115
Schwarz's Bayesian Criterion (BIC)	8,115

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph2_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,017910	,145809	8	,123	,905	-,318326	,354146
ph1_CI_a	,025879	,189644	13,873	,136	,893	-,381216	,432974
ph1_CI_p	,133309	,189644	13,873	,703	,494	-,273786	,540404
ph1_AP/DD_a	-,382365	,169970	14,900	-2,250	,040	-,744860	-,019870
ph1_AP/DD_p	-,192378	,169970	14,900	-1,132	,276	-,554873	,170117
ph1_AD/DP_a	-,798429	,532462	13,972	-1,500	,156	-1,940659	,343800
ph1_AD/DP_p	-,117906	,532462	13,972	-,221	,828	-1,260136	1,024323

a. Dependent Variable: ph2_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,021078	,007671	2,748	,006	,010329	,043014
	CSR rho	,244155	,332477	,734	,463	-,416760	,736204

a. Dependent Variable: ph2_AD_a.

APIM 41: Valence and Activation in Phase 2 on Valence in Phase 3 (Failed Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-13,848
Akaike's Information Criterion (AIC)	4,152
Hurvich and Tsai's Criterion (AICC)	19,152
Bozdogan's Criterion (CAIC)	22,971
Schwarz's Bayesian Criterion (BIC)	13,971

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,059907	,124948	11	-,479	,641	-,334916	,215102
ph2_CI_a	-,189925	,196269	21,631	-,968	,344	-,597365	,217516
ph2_CI_p	-,148667	,196269	21,631	-,757	,457	-,556108	,258773
ph2_Valence_a	,480101	,265592	19,049	1,808	,086	-,075693	1,035895
ph2_Valence_p	-,031561	,265592	19,049	-,119	,907	-,587355	,524233
ph2_Activation_a	,314076	,170402	21,740	1,843	,079	-,039561	,667713
ph2_Activation_p	,355017	,170402	21,740	2,083	,049	,001380	,708655

a. Dependent Variable: ph3_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,032207	,010005	3,219	,001	,017519	,059208
	CSR rho	,248153	,282944	,877	,380	-,325251	,688130

a. Dependent Variable: ph3_VA_a.

APIM 42: Valence and Activation in Phase 2 on Valence in Phase 3 (Failed Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-2,878
Akaike's Information Criterion (AIC)	15,122
Hurvich and Tsai's Criterion (AICC)	45,122
Bozdogan's Criterion (CAIC)	31,075
Schwarz's Bayesian Criterion (BIC)	22,075

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_VA_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-,345567	,279662	8	-1,236	,252	-,990468	,299334
ph2_CI_a	,579557	,562743	10,236	1,030	,327	-,670398	1,829513
ph2_CI_p	,326187	,562743	10,236	,580	,575	-,923769	1,576143
ph2_Valence_a	,616381	,394012	13,263	1,564	,141	-,233121	1,465883
ph2_Valence_p	,120414	,394012	13,263	,306	,765	-,729088	,969916
ph2_Activation_a	-,266151	,612874	14,887	-,434	,670	-1,573327	1,041025
ph2_Activation_p	-,635630	,612874	14,887	-1,037	,316	-1,942806	,671546

a. Dependent Variable: ph3_VA_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,052286	,019607	2,667	,008	,025072	,109038
	CSR rho	-,353504	,309371	-1,143	,253	-,786579	,312676

a. Dependent Variable: ph3_VA_a.

APIM 43: Valence and Activation in Phase 2 on Activation in Phase 3 (Failed Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-8,575
Akaike's Information Criterion (AIC)	9,425
Hurvich and Tsai's Criterion (AICC)	24,425
Bozdogan's Criterion (CAIC)	28,245
Schwarz's Bayesian Criterion (BIC)	19,245

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,182241	,128198	11	1,422	,183	-,099920	,464402
ph2_CI_a	,000516	,220490	21,929	,002	,998	-,456838	,457869
ph2_CI_p	-,094885	,220490	21,929	-,430	,671	-,552239	,362469
ph2_Valence_a	-,418875	,290787	20,950	-1,440	,165	-1,023687	,185937
ph2_Valence_p	,639469	,290787	20,950	2,199	,039	,034657	1,244280
ph2_Activation_a	-,009888	,191818	21,866	-,052	,959	-,407836	,388060
ph2_Activation_p	,499107	,191818	21,866	2,602	,016	,101159	,897055

a. Dependent Variable: ph3_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,039735	,012006	3,310	,001	,021978	,071840
	CSR rho	,064981	,300238	,216	,829	-,482224	,575711

a. Dependent Variable: ph3_AC_a.

APIM 44: Valence and Activation in Phase 2 on Activation in Phase 3 (Failed Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-7,210
Akaike's Information Criterion (AIC)	10,790
Hurvich and Tsai's Criterion (AICC)	40,790
Bozdogan's Criterion (CAIC)	26,744
Schwarz's Bayesian Criterion (BIC)	17,744

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AC_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,035099	,345633	8	,102	,922	-,761933	,832130
ph2_CI_a	,053414	,662113	8,568	,081	,938	-1,455970	1,562797
ph2_CI_p	-,076079	,662113	8,568	-,115	,911	-1,585462	1,433305
ph2_Valence_a	,613899	,328187	15,376	1,871	,081	-,084127	1,311926
ph2_Valence_p	,039560	,328187	15,376	,121	,906	-,658466	,737587
ph2_Activation_a	,012736	,645983	10,232	,020	,985	-1,422200	1,447671
ph2_Activation_p	,338555	,645983	10,232	,524	,611	-1,096380	1,773490

a. Dependent Variable: ph3_AC_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,039297	,014562	2,699	,007	,019008	,081241
	CSR rho	,313892	,318718	,985	,325	-,352324	,768973

a. Dependent Variable: ph3_AC_a.

APIM 45: AP/DD and AD/DP in Phase 2 on AP/DD in Phase 3 (Failed Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-18,758
Akaike's Information Criterion (AIC)	-,758
Hurvich and Tsai's Criterion (AICC)	14,242
Bozdogan's Criterion (CAIC)	18,062
Schwarz's Bayesian Criterion (BIC)	9,062

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	,088916	,092463	11	,962	,357	-,114594	,292426
ph2_CI_a	-,131628	,177558	20,759	-,741	,467	-,501140	,237884
ph2_CI_p	-,172074	,177558	20,759	-,969	,344	-,541586	,197438
ph2_AP/DD_a	,175928	,225618	21,881	,780	,444	-,292122	,643977
ph2_AP/DD_p	,738976	,225618	21,881	3,275	,003	,270927	1,207026
ph2_AD/DP_a	,123840	,158305	21,979	,782	,442	-,204483	,452163
ph2_AD/DP_p	,107403	,158305	21,979	,678	,505	-,220920	,435726

a. Dependent Variable: ph3_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,025164	,007648	3,290	,001	,013870	,045656
	CSR rho	-,127202	,296633	-,429	,668	-,616194	,432572

a. Dependent Variable: ph3_AP_a.

APIM 46: AP/DD and AD/DP in Phase 2 on AP/DD in Phase 3 (Failed Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-13,214
Akaike's Information Criterion (AIC)	4,786
Hurvich and Tsai's Criterion (AICC)	34,786
Bozdogan's Criterion (CAIC)	20,739
Schwarz's Bayesian Criterion (BIC)	11,739

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AP_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	-,210591	,171137	8	-1,231	,253	-,605235	,184052
ph2_CI_a	,428833	,363832	12,078	1,179	,261	-,363323	1,220989
ph2_CI_p	,163440	,363832	12,078	,449	,661	-,628716	,955596
ph2_AP/DD_a	,498379	,403996	15,699	1,234	,235	-,359390	1,356148
ph2_AP/DD_p	-,047742	,403996	15,699	-,118	,907	-,905510	,810027
ph2_AD/DP_a	-,733898	,348565	13,517	-2,105	,054	-1,484012	,016217
ph2_AD/DP_p	-,217577	,348565	13,517	-,624	,543	-,967691	,532538

a. Dependent Variable: ph3_AP_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,031943	,013151	2,429	,015	,014254	,071585
	CSR rho	-,596621	,227704	-2,620	,009	-,881138	,005068

a. Dependent Variable: ph3_AP_a.

APIM 47: AP/DD and AD/DP in Phase 2 on AD/DP in Phase 3 (Failed Negotiations with a DSS)

Information Criteria[a]

-2 Log Likelihood	-5,918
Akaike's Information Criterion (AIC)	12,082
Hurvich and Tsai's Criterion (AICC)	27,082
Bozdogan's Criterion (CAIC)	30,901
Schwarz's Bayesian Criterion (BIC)	21,901

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	,169682	,153541	11	1,105	,293	-,168258	,507623
ph2_CI_a	,136700	,236007	21,315	,579	,569	-,353662	,627061
ph2_CI_p	,040687	,236007	21,315	,172	,865	-,449674	,531049
ph2_AP/DD_a	-,610576	,311218	19,690	-1,962	,064	-1,260421	,039270
ph2_AP/DD_p	,392792	,311218	19,690	1,262	,222	-,257053	1,042638
ph2_AD/DP_a	,295588	,220308	19,227	1,342	,195	-,165153	,756330
ph2_AD/DP_p	-,271040	,220308	19,227	-1,230	,233	-,731781	,189702

a. Dependent Variable: ph3_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Repeated Measures	CSR diagonal	,046807	,014710	3,182	,001	,025282	,086659
	CSR rho	,293869	,275473	1,067	,286	-,280436	,713240

a. Dependent Variable: ph3_AD_a.

APIM 48: AP/DD and AD/DP in Phase 2 on AD/DP in Phase 3 (Failed Negotiations without a DSS)

Information Criteria[a]

-2 Log Likelihood	-,020
Akaike's Information Criterion (AIC)	17,980
Hurvich and Tsai's Criterion (AICC)	47,980
Bozdogan's Criterion (CAIC)	33,933
Schwarz's Bayesian Criterion (BIC)	24,933

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: ph3_AD_a.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	,279318	,406683	8	,687	,512	-,658494	1,217130
ph2_CI_a	-,391062	,782933	8,714	-,499	,630	-2,171083	1,388960
ph2_CI_p	-,302283	,782933	8,714	-,386	,709	-2,082304	1,477739
ph2_AP/DD_a	,155149	,694749	11,296	,223	,827	-1,369107	1,679405
ph2_AP/DD_p	,466886	,694749	11,296	,672	,515	-1,057370	1,991142
ph2_AD/DP_a	,151786	,525335	13,596	,289	,777	-,978090	1,281663
ph2_AD/DP_p	,533988	,525335	13,596	1,016	,327	-,595888	1,663864

a. Dependent Variable: ph3_AD_a.

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	CSR diagonal	,059880	,021655	2,765	,006	,029475	,121650
	CSR rho	,215170	,337185	,638	,523	-,441720	,721870

a. Dependent Variable: ph3_AD_a.

Appendix G

This Appendix includes a German version of the abstract and introduction.

Abstract

Die vorliegende Arbeit untersucht emotionales Verhalten in textbasierten Online Verhandlungen, dessen Einfluss auf Verhandlungserfolg, sowie den Einfluss eines Decision Support Systems auf das emotionale Verhalten in Verhandlungen. Dazu wird erörtert weshalb und wie emotionales Verhalten den Verhandlungsprozess beeinflusst und mitbestimmt, sowie dass sowohl intra-personelle aus auch inter-personelle Effekte emotionalen Verhaltens einen wichtigen Einfluss auf den Verhandlungsverlauf und das emotionale Verhalten der Verhandlungspartner haben. Der dynamische Verlauf des Verhandlungsprozesses wird mittels Phasenmodellen untersucht. Das emotionale Verhalten der Verhandlungspartner in und über den Verhandlungsverlauf wird mittels statistischer Methoden und Modelle untersucht, die auf die Analyse von dyadischen Interaktionen zugeschnitten sind. Die empirischen Ergebnisse zeigen dass sich das emotionale Verhalten der Verhandlungspartner über den Verhandlungsprozess verändert, dass sich diese Dynamik zwischen erfolgreichen und nicht erfolgreichen Verhandlungen unterscheidet, und dass der Einsatz eines Decision Support Systems das emotionale Verhalten in und über den Verhandlungsprozess beeinflusst. Die Interpretation der Ergebnisse legt daher nahe, dass Emotionen einen wichtigen Einfluss auf den Verlauf von textbasierten Verhandlungen haben. Weiters liefert die vorliegende Arbeit erste empirische Ergebnisse die belegen dass sowohl die Forschung über Decision Support Systeme als auch das Design sowie die Implementierung dieser Systeme deren Einfluss auf das emotionale Verhalten der unterstützten Verhandler stärker in Betracht ziehen sollte.

Zusammenfassung

Der Fokus dieser Arbeit liegt auf der Untersuchung des emotionalen Verhaltens von Verhandlungspartnern in textbasierten Online Verhandlungen, sowie dem Einfluss eines Decision Support Systems auf das emotionale Verhalten der Verhandler. Obwohl die Forschung bezüglich des Einflusses von Emotionen auf dyadische Konfliktsituationen und Verhandlungen im Bereich von Face-to-Face Interaktionen bereits weit fortgeschritten ist, bedarf die Analyse von Emotionen in virtuellen Interaktionsumgebungen weiterer Forschungsanstrengungen. Dies ist nicht nur durch den immer weiter verbreiteten Einsatz von elektronischen Verhandlungssystemen bedingt, sondern auch durch den Umstand dass sich der Einfluss von Emotionen in elektronischen Interaktionen von jenem in Face-to-Face Interaktionen unterscheiden kann. Die bis dato verfügbare Literatur zeigt dass Emotionen wichtige und zentrale Einflussfaktoren für menschliches Verhalten sind, sowie dass diese das Verhalten von Individuen fortlaufend und über den gesamten Verhandlungsprozess beeinflussen. Daher ist ein wesentliches Ziel dieser Arbeit den dynamischen Charakter von emotionalem Verhalten zu untersuchen. Die Analyse der Dynamik emotionalen Verhaltens setzt sich aus der Studie der Dynamik des Verhandlungsprozesses, sowie der Dynamik des Verhaltens der Verhandlungspartner zusammen. Ersteres bedingt die Untersuchung des Verhandlungsprozesses als fortlaufender Interaktionsprozess, um Veränderungen sowie die Stabilität emotionalen Verhaltens über den Zeitraum der Verhandlung zu studieren. Letzteres bedingt die Untersuchung der Effekte auf individueller Ebene der in Interaktion stehenden Verhandlungspartner, um zu verstehen wie diese den Verhandlungsverlauf vorantreiben und beeinflussen. In diesem Zusammenhang werden intra-personelle und inter-personelle Effekte emotionalen Verhaltens untersucht um zu zeigen dass Emotionen das eigene Verhalten sowie das Verhalten des Interaktionspartners beeinflussen als auch vom eigenen Verhalten sowie jenem des Interaktionspartners beeinflusst werden. Die Studie der Dynamik des Verhandlungsprozesses basiert auf Phasenmodellen von Verhandlungen. Die Studie der Dynamik des Verhaltens der Verhandlungspartner beruht auf statistischen Methoden und Modellen die auf die Analyse dyadischer Interaktionsdaten zugeschnitten sind. Eine dieser Methoden die zentral für diesen Zweck ist, ist Multilevel Modeling um Actor-Partner Interdependence Modelle zu schätzen. Diese geben Aufschluss darüber wie stark das eigene emotionale Verhalten eines Verhandlers sowie das emotionale Verhalten seines Gegenübers nachfolgendes emotionales Verhalten beeinflussen. Die Ergebnisse der vorliegenden Arbeit zeigen, dass sich emotionales Verhalten in erfolgreichen Verhandlungen von jenem in nicht erfolgreichen Verhandlungen, in und über den Verhandlungsprozess, unterscheidet. Weiters wird gezeigt, dass die Studie von intra-personellen und inter-personellen Effekten emotionalen Verhaltens eine präzisere Untersuchung des Verhandlungsprozesses ermöglicht als, zum Beispiel, die Studie nur eines dieser Effekte oder von dyadischen Durchschnittswerten. Letztere zeigen beispielsweise dass sich das emotionale Verhalten der Verhandler in den ersten zwei Dritteln des Verhandlungsprozesses kaum zwischen erfolgreichen und nicht erfolgreichen Verhandlungen unterscheidet. Jedoch zeigen die vorliegenden Ergebnisse auch, dass sich durch die Untersuchung von intra-personellen und inter-personellen Effekten erfolgreiche von nicht erfolgreichen Verhandlungen bereits sehr früh im Verhandlungsprozess unterscheiden lassen. Weiters wird gezeigt dass der Einsatz eines Decision Support Systems einen signifikanten Einfluss auf das emotionale Verhalten der Verhandlungspartner hat. Eine wichtige Schlussfolgerung dieses Erkenntnisses ist, dass sowohl die die Forschung über Decision Support Systeme als auch das Design sowie die Implementierung dieser Systeme deren Einfluss auf das emotionale Verhalten der unterstützten Verhandler stärker in Betracht ziehen sollte.

Appendix H

Scientific Curriculum Vitae (as of 08.2014)

Patrick Hippmann

E-mail: Patrick.hippmann@univie.ac.at
Date and place of birth: 23.04.1982, Linz, Austria

RESEARCH EXPERIENCE

University Assistant – Organization, Personnel and International Management Research Group 2010–2014
University of Vienna, Faculty of Business, Economics and Statistics Vienna, Austria

- Analysis of behavioral data to study inter-personal, intra-personal, and longitudinal effects
- Plan and conduct experimental studies in the field of behavioral economics
- Develop a research framework for the analysis of emotions in text-based online negotiations
- Collaborate in international projects to study the impact of decision support systems on negotiation behaviors
- Analyze the functioning of organizational networks to study aspects of authority, knowledge, control, or decision making

EDUCATION

PhD Candidate, Management Expected 11.2014
University of Vienna, Faculty of Business, Economics and Statistics Vienna, Austria
Dissertation title: "Multi-Level Dynamics of Affective Behaviors in Text-Based Online Negotiations: Impacts on Negotiation Success and Impacts of Decision Support"
Supervisor: Univ.-Prof. Dr. Rudolf Vetschera

Magister (Master) of International Business Administration 11.2009
University of Vienna, Faculty of Business, Economics and Statistics Vienna, Austria
Thesis title: "Emotions in Online Negotiations – The Emotional Valley: A Process Perspective on Failed and Successful Online Negotiations"

- Studies abroad at Universtat Autònoma de Barcelona, in Barcelona, Spain 09.2007–07.2008
- Studies abroad at Université Jean Moulin Lyon 3, in Lyon, France 09.2004–08.2005

Bachelor of Political Science 11.2009
University of Vienna, Faculty of Social Sciences Vienna, Austria

AWARDS, GRANTS AND SCHOLARSHIPS

- Grant of the Austrian Research Association: "International Communication" 06.2014
- Grant of the University of Vienna: For participation in conferences abroad 06.2014
- Best Paper Award at the EURO Mini-Conference Graz-2013 on "Collaborative Decision Systems in Economics and in Complex Societal and Environmental Applications" 10.2013
- Scholarship of the University of Vienna 07.2012

TEACHING EXPERIENCE

Lecturer and Teaching Assistant, Undergraduate and Graduate Level 2011–present
University of Vienna, Faculty of Business, Economics and Statistics Vienna, Austria

- International Negotiations: Teach students in English with class sizes averaging 40 to 50 students

- Organization and Personnel Management: Teach students in German with class sizes averaging 50 to 60 students
- Seminar International Negotiations: Teaching assistant for seminars in English with class sizes averaging 15 to 20 students

Supervision and Assessment of Bachelor and Master Theses 2012–2014
University of Vienna, Faculty of Business, Economics and Statistics Vienna, Austria

ADMINISTRATIVE EXPERIENCE

Chairman of the Student Representatives for PhD Studies in Social Sciences, Business and Economics 2013–present

Representative of the University of Vienna at the Job, Training and Education Fair "BeSt³", in Vienna, Austria 2012

Student Assistant supporting course-work and examinations of large- and small-scale courses, at the University of Vienna, Vienna, Austria 2009

PROFESSIONAL DEVELOPMENT

Workshop: Dyadic Analysis Using Multilevel Modeling, at the University of Connecticut, Storrs, USA, 2012

PhD Courses, at the University of Vienna, Vienna, Austria, 2010–2014

- Experimental and Simulation Methods
- Micro- and Panel Econometrics
- Structural Equations Modeling
- Multivariate Business Statistics
- Theory of Networks
- Management Decision Making
- Various Research Seminars to present and discuss current research

OTHER SKILLS AND QUALIFICATIONS

Notable Methodological Skills

- Panel and Dynamic Panel Models
- Multilevel Modeling
- Multidimensional Scaling
- Interactions and Marginal Effects
- Structural Equations Modeling
- Phase Modeling

Notable Software Skills

- R
- Stata
- SPSS
- PERMAP
- Z-Tree
- LaTeX

Language Skills

- German: Native speaker
- English: Fluent
- French: Fluent
- Spanish: Very good command
- Swedish: Basic communication skills

CONFERENCE PRESENTATIONS AND PROCEEDINGS

Hippmann, P. (2014). *Why Emotional Behaviors Matter for the Design of Decision Support Systems (DSSs): Evidence from Text-Based Electronic Negotiations.* Paper presented at the 20th Conference of the International Federation of Operational Research Societies (IFORS 2014), Barcelona, Spain.

Filzmoser, M., Hippmann, P., Vetschera, R. (2014). *Multidimensional Analysis of Negotiation Processes.* Paper presented at the Joint International Conference of the INFORMS GDN Section and the EURO Working Group on DSS (GDN 2014), Toulouse, France.

Hendrikse, G., Hippmann, P., Windsperger, J. (2013). *Trust, Transactions Costs and Contractual Completeness: The Case of Franchising.* Paper presented at the 6th International Conference on Economics and Management of Networks (EMNET 2013), Agadir, Morocco.

Hippmann, P. (2013). *A DSS User is a Happy Negotiator: The Impact of Decision Support on the Dynamics of Emotional Expressions in Text-Based Online Negotiations.* Paper presented at the EURO Mini-Conference Graz-2013 on "Collaborative Decision Systems in Economics and in Complex Societal and Environmental Applications", Graz, Austria.

Hippmann, P. (2012). *Emotional Dynamics in Online Negotiations.* Paper presented at the 12th International Meeting of the Group Decision and Negotiation Conference (GDN 2012), Recife, Brazil.

Hippmann, P., Windsperger J. (2011). *Complementarity between Formal and Real Authority in Interorganizational Networks.* Paper presented at the 5th International Conference on Economics and Management of Networks (EMNET 2011), Limassol, Cyprus.

Hippmann, P. (2010). *Emotions in Online Negotiations.* Paper presented at the 11th International Meeting of the Group Decision and Negotiation Conference (GDN 2010), Delft, The Netherlands.

JOURNAL PUBLICATIONS AND BOOK CHAPTERS

Hippmann, P., Griessmair, M., Gettinger, J. (under review). Emotions in e-Negotiations. In B. Martinovski & M. Shakun (Eds.), *Advances in Group Decision and Negotiation.* Springer.

Hippmann, P. (under review). A DSS User is a Happy Negotiator: The Impact of Decision Support on Emotional Behaviors in Text-Based Online Negotiations. *International Journal of Decision Support Systems Technology.*

Hippmann, P., Windsperger J. (2012). Formal and Real Authority in Interorganizational Networks: The Case of Joint Ventures. *Managerial and Decision Economics,* 34(3-5), 319-327.